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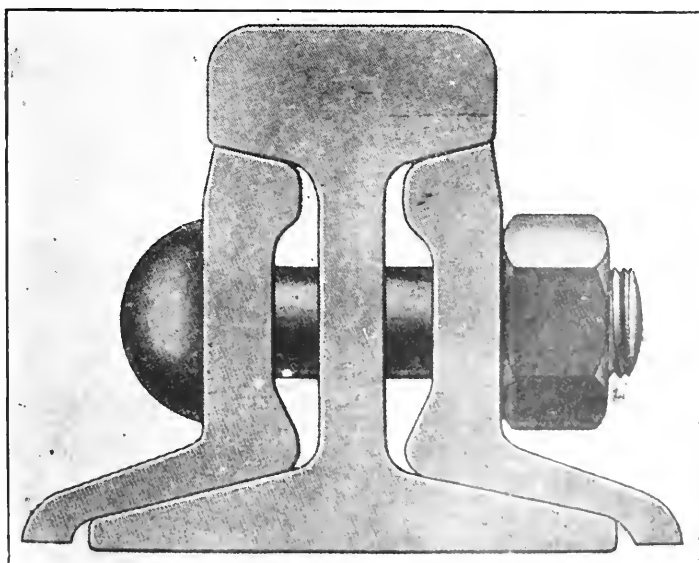
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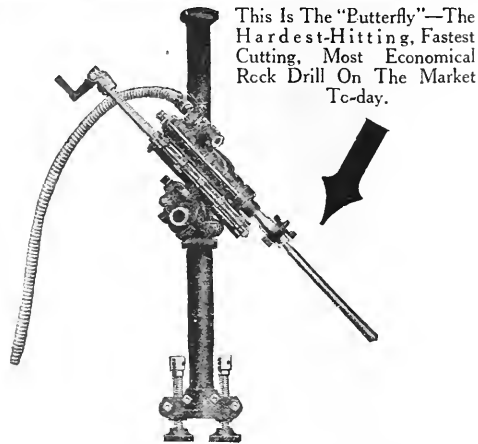
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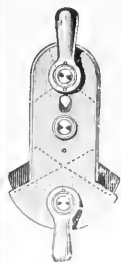
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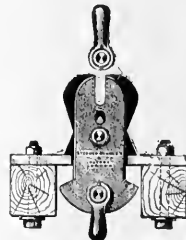
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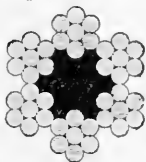
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Fig. 2. HAULING.



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Fig. 20. WINDING.

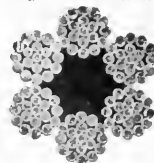
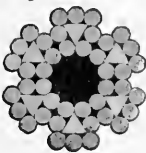


Fig. 1. HAULING.



PATENT FLATTENED STRAND ROPES.

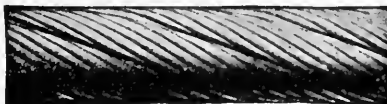


Fig. 4. WINDING.

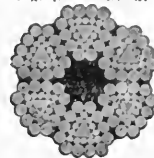
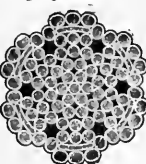


Fig. 13. SINKING.



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Fig. 13 for Sinking & Fig. 11b for Cranes, &c., are non-twisting.

Fig. 11b. CRANE &c.

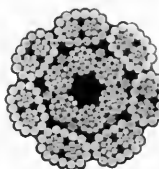


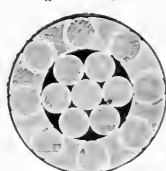
Fig. 15a. WINDING.



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Fig. 20. GUIDE.



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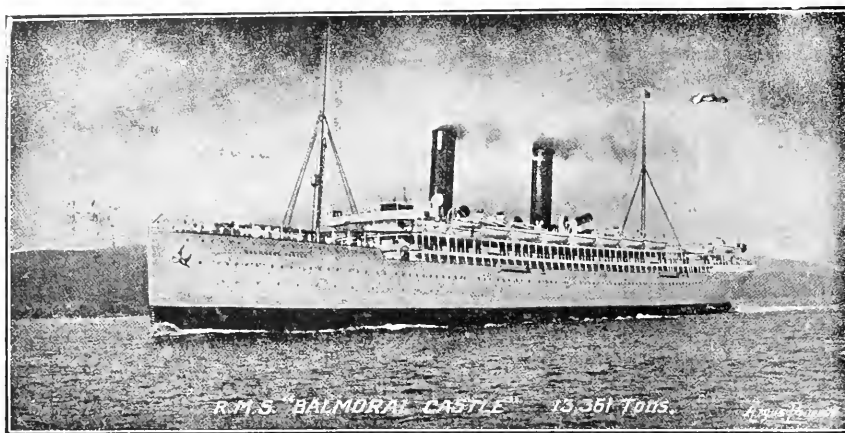
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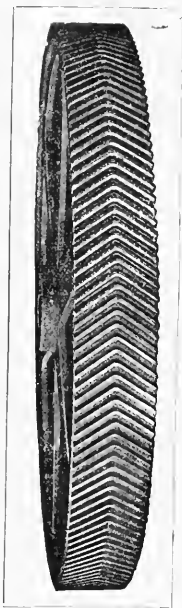
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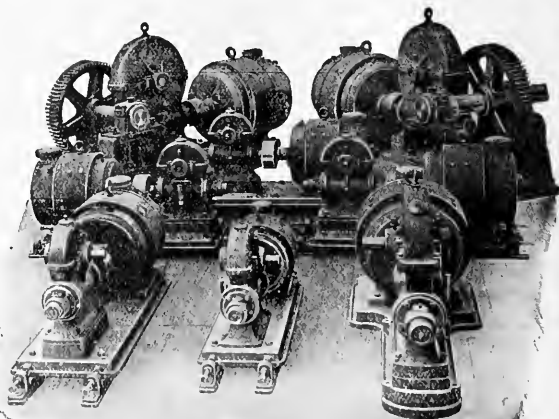


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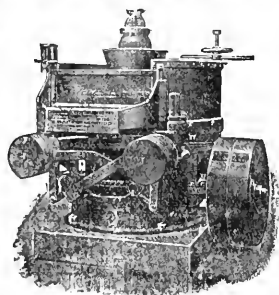
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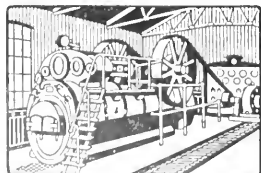
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Cash in hand, at call, and at short notice	"	-	-	-	-	-	21,534,121
Bills of Exchange	"	-	-	-	-	-	10,810,515
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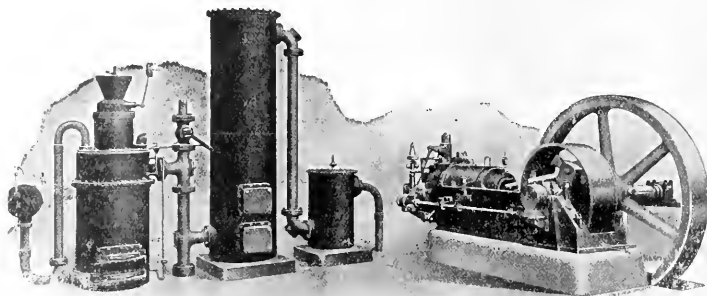
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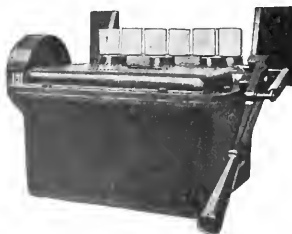
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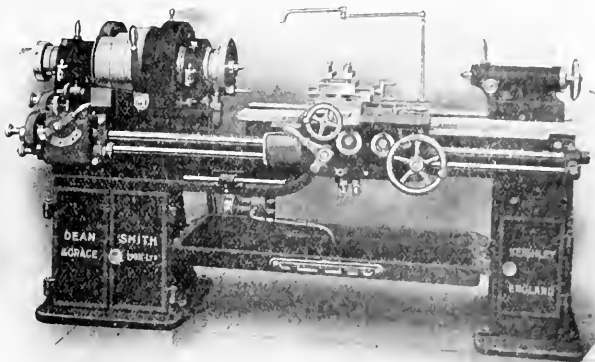
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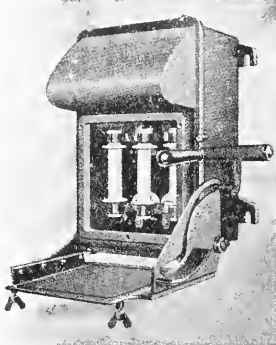
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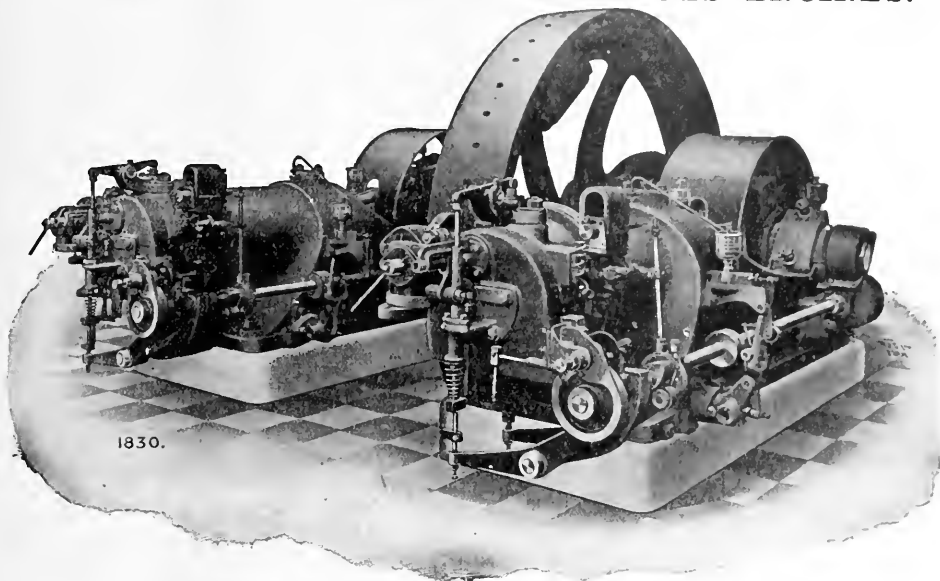
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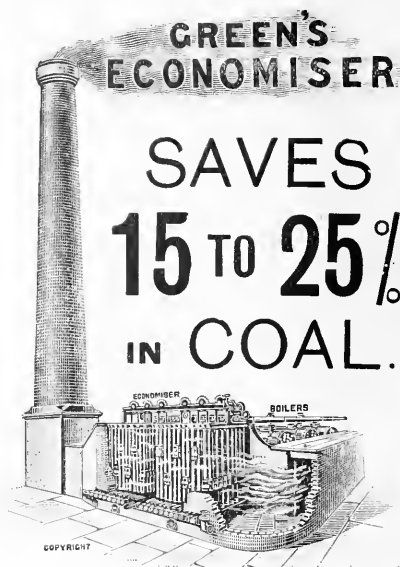
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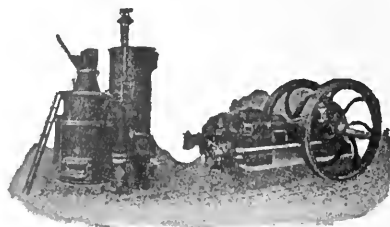
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NOTICE.—The postage of this issue of the *S.A. Mining
Journal* is: South Africa, 1d. All other parts, 2d.

CONTENTS.	PAGE.
Notes and News	169
Topics of the Week:	
Native Living Conditions on the Rand	171
Deep Mining	171
Progress in Sand-filling	172
Molder Deep Levels	173
The Enlarged Knights Deep	175
Persistence of Rand Ore in Depth	176
Chief Productive Areas of the Rand	177
Progress of Maniceland Mining	178
The Mining Industry of Katanga	179
The Tin Position	180
Outstanding Features of the September Returns	181
The Quarter with Rand Mines, Ltd., Subsidiaries	182
The September Output in Detail	183
Correspondence and Discussion: "The Dust Problem," "The Future of the Rand"	187
Rhodesian Section:	
Latest Mining News	189
Rhodesia Broken Hill	190
Geological Notes on a Traverse from Gwelo to Bulawayo	191
The Week in the Sharemarket	192
Engineering Notes and News	193
Accidents in South African Mines	193
Commerce and Industries	195
Automobile Notes	197
Index to Advertisers.	

Notes and News.

Rumours have been current that the Rand
Transvaal Coal Owners' Association was
disrupted and dissolved, but we are
glad to hear that the continuation of the same.
On the contrary, there is a strong
suppose that arrangements have been made to
completed to continue the good work of the Association for
another five years. Non-members there will doubtless be,
and it is unlikely that the Wessingburg Colliery and the
Clydesdale will join the Association, but the same work
will continue, nevertheless, and from the beginning of 1913
next, when the present agreement expires, work will be
continued in more or less the same form as at present.

We are informed that Mons. David Lavat, who is consid-
ered the most eminent of French
Sakalava Madagascar. oil geologists, has consented to act
as consulting engineer to the Sakalava
Madagascar Proprietary Oil Fields, Ltd. Mons. Lavat
has recently been retained in a similar consulting capacity
by the Roumanian Government, and his connection with
the Sakalava venture is a guarantee that the exploratory
work will be in competent hands.

The new mill of the Consolidated Langlaagte G.M. Company
started work twelve days ago, and the
whole plant is running most satisfactorily.
Langlaagte Consolidated. This month's output and profit will not,
of course, be normal, as a necessary
amount of absorption of gold must take place, and there is
bound to be a certain amount of precious metal in circulation.
However, the change over from the old equipment,
which has now been closed down, to the new has been
effected with as little disorganisation of operations as possible.
It was not practicable to run the old mill in conjunction
with the new, and on the day that the latter was started up
all work at the old battery, which has done yeoman service,
was suspended.

A large number of those who have purchased copies of the
S.A. Mining Journal Anniversary Number have expressed a wish to have them
bound in such a way as to preserve them from wear and tear, and make
them more suitable for the purposes of a permanent record.
We have, therefore, made arrangements to have the volumes
bound in full cloth, with gilt lettering, at the very reason-
able cost of 10s. 6d. per copy. Those who desire to take
advantage of this offer are requested to forward their orders
to the office of this journal, 119-126, Exploration Buildings,
Commissioners' Street.

The new Native Labour Organisation is working hard
to secure the employment of Mr.
Native Labour Matters. C. W. A. Jones, and the whole of the
is settling down well to the business
of the day, and is doing a very good
stand that the Government is satisfied with the
arrangements made for the employment of the natives
without the aid of the Government, and that the
agencies. The Government has been very satisfied with the
on the Witwatersrand, and is very satisfied with the
forthcoming. In fact, the Government is very
of mine for was 51 16 per 1,000. In 1911, the
reduced to 40 13, and last month it still further
to 34 11 was about 100. These figures are
quent testimony to the thought and care of the
the subject of Native Labour, and the fact that
and the Native Labour Organisation, and the
natives, respectively at Delagoa Bay, and at
and expert medical attention on the Rand.

good lighting and a hygienic change-house system, have largely removed an evil which at one time threatened greatly to restrict the recruiting areas of the mines. As bearing on the question of the natives' health, it is interesting to learn that the contract for the erection of the new Government-Mines Laboratory on Hospital Hill was signed by the Chamber of Mines during the week, and actual building operations are expected to commence at an early date.

* * * *

The Geological Central Office for the German Protectorates

Tin Mining in German S.W. Africa.

publishes a report by Dr. Niess on the condition of the tin mining industry in the Windhoek district, from which we take the following:—"The tin ores occur exclusively in pegmatite bodies, which appear to be connected with granite rocks. These lodes traverse only the micaceous schists, but not the harder granite. Their width varies between a few centimetres and 30 metres, of which, however, only a narrow band carries tin ore. In the component parts of the gangue, partly mica, partly feldspar, and partly quartz predominates; those which are richest in mica are also richest in tin ore. At the outcrop and near the surface the lodes are very often rich, but the results of the prospecting operations so far carried out point to the probability that, as a rule, the metal contents decrease in depth, though there seem to be a great many exceptions to that rule. In view, however, of the very large extent of the tin-carrying area and the insufficiency of the prospecting operations in their present stage, it is impossible to give a definite reliable opinion on this score. There is certainly reason to believe that in some portions of the area the lodes will continue in depth and give rise to a permanent tin-mining industry. The best districts so far known are near Otjinbojo and Neimis. At the latter place the value of the production is expected to total this year M. 150,000, and to increase next year to M. 300,000 or M. 400,000. The life of the alluvials now in course of exploitation in the Neimis districts will probably last for at least five or six years to come. A point in favour of the South-West African tin mining industry is the fact that the richest tin occurrences are all in the neighbourhood of abundant ground water.

* * * *

The annual meeting of Glynn's Lydenburg will be held on

Glynn's Lydenburg.

October 18th. The working expenditure and revenue account for the year ended June 30 are as follows:—Total revenue £87,361 19s., per ton milled 17s. 2d.; total working costs £12,613 1s. 11d., per ton milled 25s. 0-2d.; working profit £44,718 17s. 1d., per ton milled 21s. 1-7d.; sundry revenue, interest, etc., £2,711 7s. 2d., per ton milled 1s. 5-5d.; total profit £17,433 1s. 3d., per ton milled 25s. 7-3d. Mining at present is being carried on chiefly at the Mill Hill section, where most of the tonnage will be developed for some time to come. A gravity incline plan tramway is being installed from the mouth of the incline shaft on the Werf Mynpacht to convey ore down to the mill. As soon as this is completed, ore will be sent to the mill from this section of the mine. This will relieve Mill Hill section to some extent. Some ore will be contributed to the mill from South Hill and Vergunning claims as soon as labour becomes more plentiful. Development work on the Werf Mynpacht has been pushed forward. "We are not having many water troubles," writes the manager, "this section being below the water level. The pumps are now working fairly well, and the Main Drive is getting well forward, the one in the fore-bay doing very well. Our workings cover a frontage of about 500 feet going south towards the southern boundary of the minepact, which is about 1,700 feet from the base of the Main Drive. Judging from development work done by the F.C. Glynn's Extension, and from more recent work on the section boundary, we can reasonably expect that good coal will be held over this 1,700 foot strip, but until further development has been done it is not possible to estimate how far this strip will prove to be. The plant is all in good order and running well. The water

in the top race being low, most of the plant is being driven from the Sabie Power Station, which also supplies power to several gold mining concerns in the neighbourhood."

* * * *

With 179,111 native labourers at work, the Rand produced

A Study in Kaffir Values.

gold of a total value of £3,110,176 in August, which works out at about £17 per labourer. One can hardly regard this method of calculation as an index to efficiency, but it is interesting to calculate that in August of last year the earning was at the rate of about £16 per head, and in October of 1910, when 180,103 natives were employed on the Witwatersrand, £15 per head. In October, 1909, the output per coloured labourer was about the same as in August of this year, and in the same month of 1908, when the last of the Chinese were here to augment the native labour force, the product per man was also £17. A full consideration of the percentages employed on non-productive and productive work, and of the grade per ton milled in the different periods, is necessary before one is entitled to make any very definite deductions from these calculations. In view, however, of the mining and treatment of much larger tonnages of low grade ore to-day than in previous years, one is perhaps justified in reading into these figures the pleasing fact that the efficiency of native labour, despite the large numbers of "raw boys" recruited, has been improved somewhat. The following table, stating the number of coloured labourers employed on the Rand, output and production per man, in typical months since 1904, may prove instructive:—

Month.	Natives.	Chinese.	Total Coloured Labourers.	Output per Labourer.
October, 1904 ...	71,661	12,968	84,629	£1,333,362 £15
October, 1905 ...	83,675	15,901	129,576	1,690,036 13
October, 1906 ...	76,035	53,134	129,169	2,214,754 17
October, 1907 ...	99,610	42,338	141,948	2,264,910 16
October, 1908 ...	139,165	12,317	151,482	2,523,383 17
October, 1909 ...	148,077	—	148,077	2,468,493 17
October, 1910 ...	180,103	—	180,103	2,665,216 15
August, 1911 ...	179,810	—	179,810	2,898,673 16
August, 1912 ...	179,111	—	179,111	3,110,176 17

* * * *

The Robinson Deep, in addition to 17,622 ozs. recovered

from ordinary milling operations last month, obtained 1,587 ozs. of gold from the old mill plants, the proceeds of which—£6,652—were placed to Renewals Fund. The mine is now "working up" to its new capacity of from 60,000 to 65,000 tons per month with 160 stamps and 10 tube mills at work, which has been fixed as the most effective crushing basis for the future. This condition has not yet, however, been attained. Last month 180 stamps and 8 tube mills milled 47,100 tons, so that the larger tonnage is expected to be reached with twenty less stamps and two more tube mills at work.

* * * *

Geduld alone of the mines under Goerz control showed an

The Geduld Output and Profit.

increased profit last month. In both September and August fifty stamps and three tube mills were at work, and a slightly larger tonnage was crushed in August. The output for last month was a little less, but the profit at £5,017 is a little more. Presumably, working costs have been somewhat reduced. It is expected that the new equipment will be completed by May next, after which date the company should record substantially better returns.

* * * *

We deeply regret to record the death, which took place in

The Late Mr. John A. Chalmers.

mail week, of Mr. John Alexander Chalmers, at his residence in Bourne-mouth. Mr. Chalmers had been suffering for some years from tubercular trouble, to which he succumbed. Before he had to give up business he was very well known in mining circles, and

was the joint author, with Dr. Hatch, of "The Gold Mines of the Rand," published in 1895 by Macmillan and Co. He was at one time associated with Mr. John Hays Hammond when on the Witwatersrand, and after that was one of the engineers of the Consolidated Gold Fields, Ltd., in Rhodesia. Before he had to give up all work he was a partner with Mr. H. A. Piper. During his active professional career, Mr. Chalmers' headquarters were in Gresham House, London, E.C., and, although he had commissions to perform for nearly all the big houses connected with South Africa, his reputation as a man who had made no professional mistakes followed him into his retirement. He was one of the first to perceive the great possibilities of some of the Rhodesian mines, notably the Falcon, and had a good deal to do, in connection with Mr. John Hays Hammond, in laying out the scheme of operations for the Randfontein Estates Company in its early days. There were few parts of the world he had not visited to report upon mines for various groups, and he had a remarkably wide knowledge of mining conditions throughout the globe. On the Rand, particularly, his passing will be keenly regretted by many friends.

* * * *

There are evidences of some revival of prospecting operations on the Western Witwatersrand.

Prospecting on the Western Rand Renewed.

The theory is now advanced that the horizon of the Main Reef series lies to the north-in consequence the farm Witfontein, west of Middellevlei, is to be prospected by means of diamond drills under the direction of Dr. Voskuil and Mr. N. E. Bertier. We understand that one important Mining House has agreed to finance the work. Prospecting is also proceeding between Potchefstroom and Klerksdorp, and it is reported that the Johannesburg Consolidated Investment Company is interested in the exploitation of this section.

* * * *

A good deal of correspondence has appeared in the papers recently in connection with the West Rand Unified.

Rand Unified, and it is not unlikely that the opinions of the Inspector of Mines for the Krugersdorp district have been largely responsible for the anxiety to obtain more detailed information than has so far been forthcoming. Rather an important point in the comments which appear in the Annual Report of the Mines Department in reference to this property is the definite statement that the series of reefs opened up on the Penwith and adjoining blocks, owned by the West Rand Unified, are a section of the Government Reef series. The geology of the Krugersdorp area is of rather a complicated kind, and one can scarcely assume that Col. Bottomley has allowed a definite statement of the kind mentioned to appear in his report unless supported by reliable authority. Since Dr. Mellor is working in the neighbourhood, and has probably carried his survey well into the Krugersdorp area, one is led to the conclusion that his services must have been requisitioned for the purpose of strengthening the views of the Inspector of Mines. However that may be, it is of interest to learn that Mr. Thomas Dilks, the recently appointed manager, has put an end to milling operations, and has determined to make himself thoroughly acquainted with the actual facts of the position as soon as possible. A not unimportant part of the programme is the dewatering of the Penwith shaft in a cross-cut from which some very high values were reported by Mr. J. M. Calderwood. A careful sampling of the mine will also be undertaken, no doubt, and from the evidence of this work some reliable and conclusive evidence should be obtained upon one side or another. The first systematic sampling of the workings, made before the mill was completed, was carried out at the instigation of a member of the staff of this journal. The results of this sampling, and of some other tests since made, have not, it appears, been accepted by the whole Board as conclusive, and it is desirable, therefore, in the interest of all concerned, that some final court of appeal, so to say, should be established for the purpose of deciding this most important question.

TOPICS OF THE WEEK.

NATIVE LIVING CONDITIONS ON THE RAND.

SOME extraordinary evidence has been before the Tuberculosis Commission this week on the subject of Native on the East Rand. If we are to judge from the substance of his evidence that appeared in the Press, this witness can find no words sufficiently strong to condemn the treatment of natives on the Rand. He paints a lurid picture of the conditions under which the natives live and work, and he allows to slip no opportunity of attacking compound managers and all responsible for dealing with the natives. Indeed there is more than a suspicion that the witness had made up his mind to make it as unpleasant as he could for the compound managers, and his evident care to confine his attack to vague and unsupported generalities showed that his intention was to be frankly sensational. There were, he said, two schools of compound men. There was the old-fashioned type who left the natives to themselves and knew when they could trust them. The more modern type hustled the natives around and aimed at increased efficiency in the sense of the number of natives turned out to work. There was a lot of rivalry between them. He was not prepared to say which was the best system, but he did not think it was good that the scheme should be to turn out a certain percentage of boys a day. In the hurry and bustle it was possible that sick boys might be overlooked. The question of daily native efficiency was something of a fetish in many cases. Regarding shelter at railway stations near the mines, he said that natives often sat in the open for hours in the daytime rather than go down to the station in the dark. Failing the trucking of time-expired natives, he said that up to three months ago the conditions were bad. Boys were tightly packed in trucks which were without light, and what with their kit, etc., it was impossible for many of them to sit down. This had been much improved within the past fortnight. Old third-class carriages were being used. There had been cases in his knowledge in which natives were unnecessarily hustled about when being placed on a train. Much more of a like nature was included in the evidence of this particular witness, which, it is to be hoped, the Commission will appraise at its true worth. It is clear that had things been as bad as he painted, blame would rest on the witness for not having taken the necessary steps to secure reform. As a fact, there is ample evidence available that the state of affairs pictured by him has been remedied for some time, and that, however true his remarks might be if applied to past conditions, they are emphatically unjustified to-day. Fortunately for the good name of the industry, medical evidence has since been adduced that does not square with his allegations, and, in the circumstances, it may be safe to leave the Commission to decide the value of his evidence. As a fact, the best statistics are quite belated, as also shown by the general manager of the Boksburg Inspector of Mines for 1911. The latter officer, in his report, states that, though there was room for improvement in the conditions of the white population lived and worked on the Rand, at the time of writing he reported the necessary improvement had been effected. We prefer, in the meantime, to accept the statement of the Inspector of Mines, who clearly confirms the report made by the mines.

DEEP MINING.

It is a most interesting fact that the Witwatersrand is now mining at an average depth of over 5,000 feet. In 1900, or twenty-three years ago, even at a depth of 1,000 feet the optimists dreamed that the auriferous zone would be found at a vertical depth of close on a mile below the surface, and would, moreover, be mined, tested, and treated.

at a profit. In the not very far distant future the probabilities are that Rand ore will be worked at a depth of a mile and a half and even more—it is clear there are no mechanical barriers to such an achievement. For the present, however, the greatest depth to which man has penetrated on the Rand is 5,040 feet, which is the vertical depth at the bottom of the inclined portion in the Catlin shaft of the Jupiter Gold Mining Company. The depth of the vertical portion of this shaft is 4,243 feet. The second deepest shaft on the Witwatersrand is the Turf Mines shaft of the Village Deep Company, which has been sunk to 4,144 feet. The vertical depth at the bottom of the inclined portion of this shaft is 4,184 feet. The Cinderella Consolidated shaft is not so deep as the Turf Mines vertical by 22 feet, its depth being 4,122 feet. The incline has, however, been sunk deeper at the Cinderella than in the Turf Mines section of the Village Deep, the vertical depth at the bottom of the inclined portion in the great Abu East Rand deep level being 1,770 feet. Another ultra deep mine on the Witwatersrand in which work is proceeding at a vertical depth of over three-quarters of a mile is the Sinauer Deep. Here the Rudd shaft is down to 3,264 feet and the Mihner shaft 3,118 feet. The deepest working point in this property, which may be regarded as one of the deepest working points on the whole Main Reef series, is on the 24th level, a vertical depth of 5,064 feet below datum line or 4,586 feet below the collar of the Mihner shaft having been reached. These figures are the most striking and valuable testimony that can be brought forward as to the persistence of the auriferous conglomerates in depth. It can safely be asserted that no other metalliferous formation in the world has been found to extend over such a large area and to such a great depth as the Main Reef series, and the statistics given above, considering the small and uniform increase in temperature noted in these deep workings, must make one very hopeful as to the possibilities of mining at a profit 8,000 feet below the surface. In connection with the figures given, it should be pointed out that depths are sometimes stated in reference to a datum line running along the Rand, but the depths below actual shaft collar are, of course, the most informing and valuable. It will be observed, for instance, in the case of the bottom level in the Sinauer Deep there is a difference of close on 500 feet between the depths from these two surface bases. Two other gold mines have probed the earth to a depth as great if not greater than the Rand properties cited above. These are the St. John del Rey, in Brazil, and the New Chum Railway Mine, in Victoria. We regret we have no reliable figures as to these. There are a number of deep mining ventures in the Bendigo and Ballarat fields of Victoria, but the Western Australian mines are much shallower. The Monthly Journal of the Chamber of Mines of Western Australia for June 29 publishes the following table giving the present depths of the chief gold mines in Western Australia. Unless otherwise stated, the figures relate to the main shafts. It will be remembered that the lodes at Kalgoorlie are nearly vertical; Associated, 2,286 feet; Charters (Main Reef), 2,274 feet; Golden Horse Shoe, 2,390 feet; Great Boulder (Edwards), 2,879 feet; Great Boulder Perseverance, 2,200 feet; Great Fingall (vertical and underlie), 2,516 feet (depth from surface to bottom of winze from 13th level); Ivanhoe, 2,650 feet; Kalbarli, 1,900 feet; Lake View Consols, 2,047 feet; Sons of Gwalia (underlie), 2,720 feet; South Kalbarli, 1,818 feet. The deepest quartz mine in Africa is the Globe and Phoenix, in Matba Island, which has been sunk to a depth of between 2,000 and 3,000 feet. To complete this survey of deep shafts, we may remember that the greatest depths at which metalliferous mining is being carried on at the present time are in the Michigan copper belt of North America, where work is being carried on at a vertical depth of between 5,000 and 6,000 feet. The deepest coalfields are in Belgium and Germany, where, we believe, colliers are at work at depths of a mile and a quarter from the surface.

PROGRESS IN SAND-FILLING.

REFERENCES to sand-filling in the annual reports for last year of the Rand Inspectors of Mines show that considerable progress was made during 1911 in this method of supporting excavations, and it is probable that its use will be greatly extended as the years go by. In all, ten of the largest mines on the Witwatersrand had adopted the process, and several others are putting in plants. The total quantity of sand lowered into the mines during a year is not easily obtainable, but certainly exceeds 1,000,000 tons. At one mine alone 278,000 tons of sand were sluiced into the workings; two plants were used, one for current sands and the other for accumulated. No serious difficulty has been experienced in neutralizing the effect of cyanide compounds remaining in current sand. Permanganate of potash, bleaching powder or similar oxidizing agents are used to convert the dangerous salts into stable cyanates and care is taken that only neutral or alkaline water is used for flushing the sand. Many forms of pipe lining have been tried during the year, but unfortunately not one of them will withstand the friction of the sand in a long vertical column. Present practice points to three methods of surmounting the difficulty of excessive wear in deep vertical shafts: (a) The pipe can be broken at intervals of about 300 feet and the velocity of flow checked by baffle boxes; (b) the sand can be dropped down dry through a wooden box launder about 6 inch square section and picked up with water near the bottom of the shaft; (c) a borehole can be sunk to connect into a stope and from the bottom of it pipes or launders can be used to convey the pulp. All these processes are at present under trial. The difficulties of retaining the sand underground have been largely overcome, strong timber or waste packs faced with cement being used as barricades. Where the process has been entered upon on a large scale the results have been very satisfactory. At the Witwatersrand Deep, for instance, a large section of the upper works have been filled and a considerable amount of valuable ore in the shape of pillars has been recovered. It is found even in the steepest workings that if the sands on being deposited are carefully drained, the lower deposit quickly dries out and very little weight is thrown on the supporting barriers or stulls which need not be nearly so strong as might be imagined if the proper conditions of draining are observed. At the same time good ventilation is provided around the free sides of these barriers and regular inspections are carried out to prevent the possibility of a breakaway. At the same mine current sands are used for filling. They are flushed from the tanks, and after being treated with permanganate of potassium to free them of any contained cyanide, are run down to an old winze at the top of which they are dewatered in cones, the water being pumped back and the resulting sludge being led down to the workings in pipes and launders. It is hoped that all the current sands may eventually be disposed of in this manner, which on the one hand will result in a great saving of labour. At the Cinderella Consolidated, a long series of experiments have been carried out. At first the ordinary method of taking the wet sands down in pipes was tried, with both ordinary iron pipes and wood-lined pipes. It was found, however, that a great amount of scouring took place and the pipes were continually bursting, flooding the shaft with sands and causing endless trouble and delay, so this method had to be ultimately abandoned. A wooden box was then carried down the shaft, 12 inches square in section, with flap doors about every 100 feet. Experiments were then carried out over a long period with dry and damp sands. It was eventually found that a dry sand, containing not more than 5 per cent. of moisture, could be successfully passed through, a bucket full of stones being emptied down every half hour to clear any tendency to clog. If more than 5 per cent. moisture is present in the sands, it is found that clogging takes place in the box and operations have to be stopped and the box cleared. These facts, at any rate, make it clear that all the difficulties in the way of successful sand-filling are being overcome.

MODDER DEEP LEVELS.

A Novel Development Scheme—Values in the Shaft and Crosscut Contrasted—Importance of the No. 2 Shaft.

(For plan see following page.)

A NOVEL development scheme has been decided on for the Modderfontein Deep Levels Company, the progress of which will very naturally be followed with the greatest interest, since this property has in its initial exploration given promise of proving a deep level worthy of its northern neighbours—the New Modderfontein and Modderfontein B. Gold Mines.

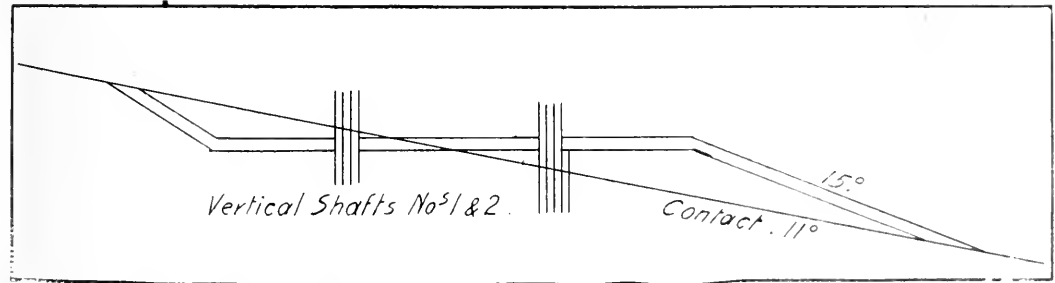
THE PRESENT UNDERGROUND POSITION.

There apparently is some misunderstanding as to the relative situations of the two shafts and the points at which reef so far has been intersected. The official reports published, whilst admirable in their comprehensive descriptions and valuations of the reef sections intersected, leave one in some little doubt as to just precisely what the work carried out to date has been. The position is that there are two shafts, situated 100 feet apart, and named No. 1 as to the northern and No. 2 as to the southern shaft. The advantages accruing from this method of sinking, which has been adopted in a number of German collieries, we have discussed on previous occasions, and call for no further remark here. Reef was intersected in the No. 1 or northern shaft early in August at a depth of 2,990 ft. A crosscut was then carried

as the Witwatersrand is concerned. Naturally the novel method for South African gold mining of sinking two shafts so close together, combined with the flat angle of dip—has called for a method of development which in its initial stages is out of the ordinary.

CIRCULAR DEVELOPMENT.

In the Modder Deep Levels a scheme of circular development has been initiated. Drives will be carried right around the areas enclosed by the two shafts, and from points on the circumference of this development circle other drives will be started to the east and to the west. A crosscut has also been made north from No. 1 shaft to a point from which a raise is being put up to open up the area north of this shaft. When the incline has been carried south, the Modder Deep Levels management will therefore be in possession of valuable and definite data as to the reef values and conditions in the central portion of the property. The diagram and cross section here reproduced enable one to understand the scheme better than from any written description. It will be observed from the cross section that the station at No. 2 shaft will be cut in the quartzite and not in the treacherous shale footwall—an obvious advantage.



MODDER DEEP LEVELS: CROSS SECTION SHOWING SHAFTS AND CROSSCUTS

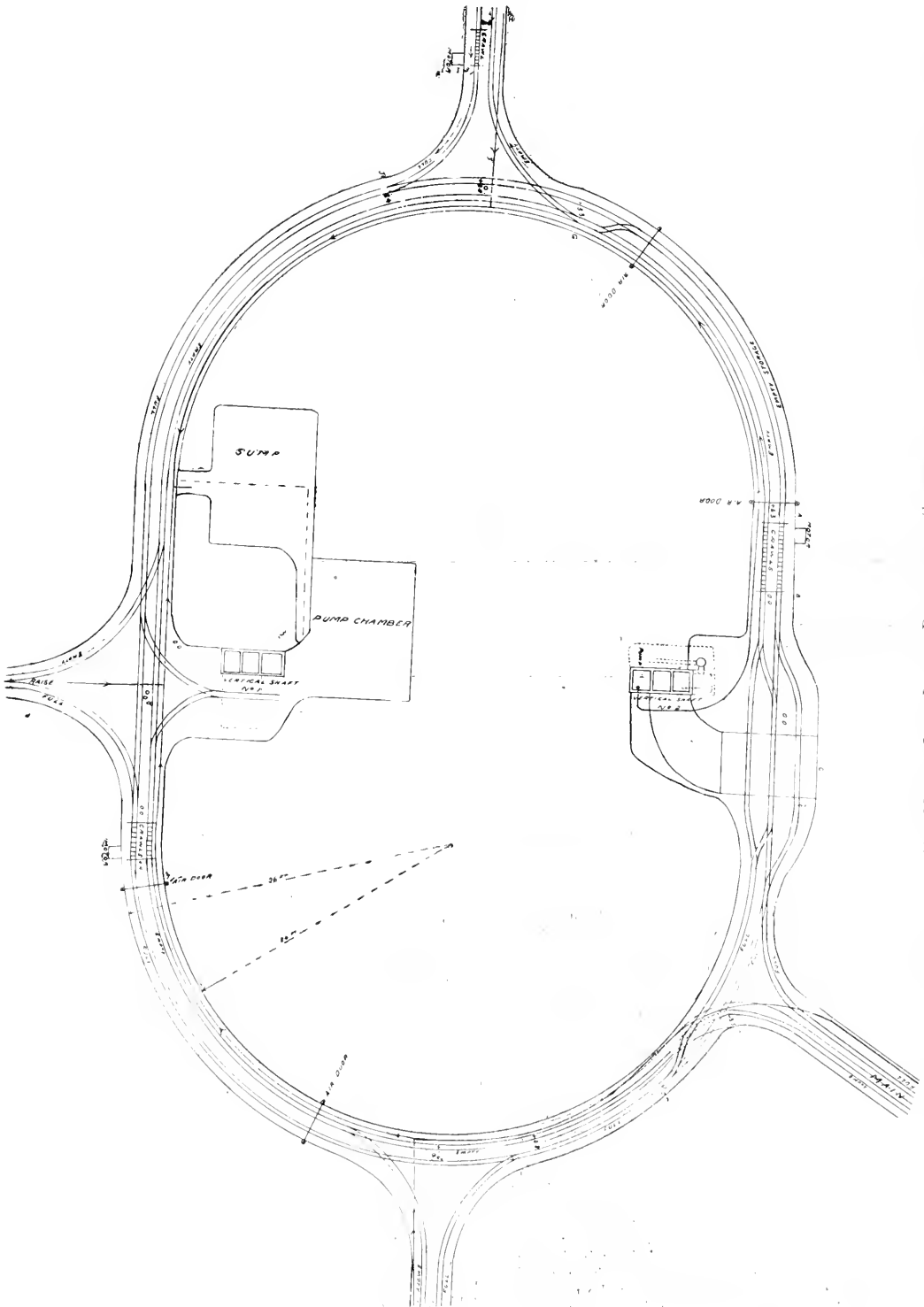
to the south of No. 2 shaft, and in this crosscut the reef series was intersected at a point rather nearer the No. 2 than the No. 1 shaft, a few days ago. The two shafts are now connected up, and the No. 2 or southern is being carried down to the plane of the reef. The position is clearly summed up in a report for the quarter ending 30th September, which states: "The Main Reef was struck in shaft No. 1 on the 2nd August last at a depth of 2,990 feet. Shaft No. 1 was sunk to a total depth of 3,085 feet, being 86 feet below the station, and sinking completed. The station and small ore-bin were completed, and drives started east and west underneath the reef. These drives will be turned on to the reef when further away from the shaft. A main raise was started north, and the crosscut to shaft No. 2 was connected with that shaft on the 1st October. The total development footage, exclusive of the station and ore-bin, was 101 feet. The values of the reef in the shaft and the connecting crosscut have been published. Shaft No. 2 was sunk to a total depth of 2,997 feet, being 2 feet above the level of the station." Eventually this No. 2 shaft will become the main hauling way of the property and through it a very large tonnage will daily be hauled. The main incline will, of course, be sunk from this vertical, and it will become the chief point of attack on the property. Meanwhile initial exploratory and development work is proceeding on what are, we believe, unique lines in so far

CROSSCUT RESULTS CONFIRM SHAFT VALUES

The first results secured have, to say the very least, been encouraging. It will here be of interest to record the intersections in the No. 1 shaft and the crosscut on parallel columns

	No. 1 Shaft.	Assay Value	Crosscut	
	ins.	dwt.	ins.	dwt.
Hanging Wall Leader	27.9	24.88	23	21
Waste	31		15	
Middle Reef	6	23.78	6	Traces
Waste	22.6		37	
Footwall Leader	39	7.26	113	13 dwt. 15 lbs.
Whole body, including waste	126.5	8.84	1224	9 dwt. 3 lbs.

It will be noted that both in width and value where encountered in the crosscut corresponds very well with the intersection in the shaft. In the case of "Middle Reef" gave 1 oz. 3.78 dwts. per ton, while in crosscut only traces were obtained from this reef.



THE MODDER DEEP LEVELS DEVELOPMENT SCHEME.

The accompanying diagram shows how the workings around the two shafts will appear when the company reaches the producing stage. The main incline is shown diverging from the central development area in a diagonal direction. The development rise from No. 1 shaft and the two main east and west drives are also depicted.

in each instance was 6 inches wide, including partings. On the other hand, the footwall leader in the crosscut was a little wider and much higher in value. The crosscut values and widths appear amply to confirm the results obtained in the northern shaft.

THE ENLARGED KNIGHTS DEEP.

Mining and Milling Aspects of the Simmer East Purchase—To Mill 100,000 Tons Per Month—A Novel Feature in the New Crusher Station—Future of the Simmer East Section.

PROFITS of the Knights Deep and Simmer and Jack East Companies for the month of September were, as has been fully anticipated, affected through the burning down of the crusher station and the consequent disorganisation of the reduction works.

RETURNS AFFECTED BY THE FIRE.

During July the Knights Deep employed 270 stamps and six tube mills, crushed 62,200 tons and recorded a profit of £17,505. In August 20 less stamps were running, the tonnage milled was reduced to 48,517 and the profit to £8,692. Last month an improvement was effected, the ore milled amounting to 58,871 tons and the profit to £11,026, but results were still considerably below the average for the mine. The Simmer East, too, has suffered severely through loss of the crusher station and the attendant adverse effect on the reduction operations, as the following figures show:

	Stamps.	Tube Mills.	Tons Milled.	Output, ozs.	Profit.
July	130	3	34,000	7,823	£6,997
August	150	3	29,413	6,568	2,263
September ...	150	3	34,326	6,876	*1,413

*Loss.

The new crusher station is now almost completed—it will be fully finished in another fortnight at any rate—and for the current month a return to normal results is expected.

THE RAND'S FOURTH LARGEST MILL.

From the first of this month the Simmer East becomes merged in the Knights Deep, and accordingly a substantial advance in the outputs and profits of the latter company may confidently be looked for. In our issue of a fortnight ago we dealt at length with the financial aspects of the absorption and the arrangements made with the Consolidated Gold Fields Company to enable the Knights Deep to obtain possession of the now defunct Simmer East Company's property and plant for £250,000. From the point of view of the Knights Deep, the deal is eminently good business. The Knights Deep is essentially a low-grade mine, to which tonnage means everything. It operated at the average rate of expenditure obtaining over the whole Witwatersrand, the Knights Deep would be an unpayable proposition, and the continual aim and endeavour of the management is to keep working costs down to as low a level as possible. The new arrangement gives to the Knights Deep an equipment of 400 stamps and 9 tube mills. So far the largest amount put through the mill on joint account for the Knights Deep and Simmer East in one month has been in the neighbourhood of 97,000 tons. Possession of the complete installation by the one company will greatly facilitate milling and treatment, so that crushing at the rate of 100,000 tons per month will be attained. It is proposed to effect several improvements to the plant, and it is probable that in the not far distant future milling will be proceeding at the rate of well over 100,000 tons per month. In any case the Knights Deep, through the purchase of the Simmer East plant, becomes the fourth mine on the Main Reef in point of tonnage.

THE NEW CRUSHER INSTALLATION.

The efficiency of the whole installation will, of course, be much improved by the new steel sorting station. This

Whilst it is premature at this early date to speak of the probable recoveries and profits to be earned by the Modder Deep Levels, the first intersections are undoubtedly promising in the extreme. The progress of development work will accordingly be very closely watched.

LOWER COSTS AND HAMMER DRILLS.

Substantial savings in administration and general standing charges obviously will result to the Knights Deep as a consequence of the purchase of the Simmer East's plant, so that the outlook for the purchasing company is now undoubtedly a most promising one. The situation has furthermore been much improved through the use of hammer drills underground. At times the Knights Deep has felt the pinch of labour shortage very severely, and some months ago extensive tests were commenced with a view to discovering some mechanical substitute for the hammer boy. These experiments have met with very pleasing success. The employment of hammer drills on mining footwall has been established practice at the Knights Deep for some time past, but recently these hammer machines have been started in stope faces. Nine were employed on this work last month, and it is most interesting to learn that they achieved a larger fathomage than the big machines. The results secured at the Knights Deep and other mines of the Gold Fields group with these hammer drills are of the very foremost importance. Mr. F. D. P. Chaplin made a conservative statement on the success achieved in this direction to date when he remarked, at the Simmer and Jack Proprietary meeting a few days ago: "Continuous efforts and experiments are being made, to the cost of which this company has contributed, to find a machine which can economically supersede hand drilling, and we appear to be nearer success in this respect than at any time in the past." Very important, too, are the results secured at the Knights Deep in connection with detachable drill bits, mention of which has on previous occasions been made in the columns of this journal.

SITUATION UNDERGROUND IN THE SIMMER EAST.

To what extent the Simmer East mine will contribute to the plant in the future is doubtful. The mine is very broken; in fact it seems to be a meeting place for all the faults and dykes in the vicinity of Germiston. In consequence of these stratigraphical disturbances, the reef has been entirely "cut out" of about 52 claims, and as the better sections of the property have been extensively drawn on in the past, it may certainly be inferred that the Knights Deep Company in bidding a quarter of a million sterling for the Simmer East were acting with a view to acquiring the extensive plant rather than the mine. The statistics published by the Consolidated Gold Fields group for last month show that the Simmer East milled ore of substantially over a sovereign per ton grade and was operated at a loss of £1,413. However, it is not intended to close the mine down, and no doubt the Simmer East, which has proved itself to be one of the most unfortunate gold mines in South Africa, will still yield some appreciable contribution to the augmented outputs of the Knights Deep.

PERSISTENCE OF RAND ORE IN DEPTH.

The Fallacious Theory of "True Fissure Veins"—Some Striking Examples of Failure in Depth—The Conditions of the Rand Banket.

In the *Mining and Scientific Press*, Mr. T. A. Rickard has taken up the subject of the persistence of ore in depth at some length, and in the first portion of his interesting contribution on the subject deals with the problem in a general way. Speaking of the old and widely held theory that "true fissure veins" penetrated "into the very heart of creation and continued rich to the unknown interior of the earth," he points out that since 1893, when William P. Blake attempted to uphold the view in the *Engineering and Mining Journal*, technical opinion has undergone a great change:—"The logic of facts has proved irresistible. It is only in a flamboyant prospectus or in a popular article that anybody dares now to repeat the old fallacy. With the revival of interest in the genesis of ore deposits, after the Posepny paper was published, and with the acceptance of a tentative theory of secondary enrichment, especially of copper ores, consequent upon the papers of Emmons and Weed, it became impossible for any responsible geologist to make an optimistic generalisation on the subject of the indefinite persistence of bonanzas in depth. The mine-owner might still hug the delusion, but science discarded it definitely and finally." Here are a few data to support the new opinions:—"The Comstock was once synonymous with a natural treasure-vault, yet its bonanzas were found at a relatively shallow horizon. The big bonanzas of the California and Virginia mines reached from 1,100 to 1,860 ft. The most productive portion of the Comstock mines was above the level of the Sutro tunnel, which cuts the lode at about 1,850 ft. below the outcrop. The Combination shaft was sunk to a vertical depth of 3,260 ft. Later workings from the Union shaft went down to 3,350 ft., but they found only patches of rich ore. Broadly speaking, mining became unprofitable in depth, not because of hot water or other physical obstacles, but just because rich ore was less plentiful and barren rock was more abundant. The deepest metal mine in the world is the Tamarack, at Calumet, Michigan. This mine is the 'deep-level' of the Calumet and Hecla, that is, it gets the lode on its dip after it passes out of the vertical side-line of the Calumet and Hecla property. The No. 1 shaft of the Tamarack cut the Calumet conglomerate lode at 2,270 ft., and the Osceola amygdaloid lode at 1,000 ft. deeper. The No. 5 shaft, which is 5,253 ft. deep, cut the Calumet lode at 4,835 ft., and the No. 3, which is 5,281 ft. deep, cut it at 4,662 ft. The deepest workings in any metal mine are those of the No. 5 shaft, for they extend to 5,368 ft. vertically below the surface. The Red Jacket shaft of the Calumet and Hecla cuts the same lode at 3,287 ft., and was sunk at 4,920 ft. In 1901 it was recognised that the wonderful run of ore had been

bottomed. The yield of copper in the Calumet and Hecla declined from 5 per cent. in 1873 to 3 per cent. in 1900, and $1\frac{1}{2}$ per cent. in 1910. The Tamarack venture was a disappointment, for it was based on the expectation of persistent ore. The Tamarack paid its last dividend in 1907, and was absorbed by the Calumet and Hecla in 1911. The future of the Calumet and Hecla Company depends not on its own deep workings, but the yield from shallower subsidiary mines."

BENDIGO.

In *The Bendigo Advertiser* of June 10th last there appears the following, based on local experience:—"In almost every, if not in every, gold mining area in the world the experience is that as considerable depths are attained, the gold is scarcer. The depositions of quartz may be more or less or practically the same as in the upper levels. Opinions vary on that point, but most authorities agree that as the earth is penetrated to great depths gold is less plentiful. Bendigo investors and speculators know from bitter experience the absolute truth of the latter point, as far as this field is concerned."

THE FUTURE OF THE RAND INDUSTRY.

The application of all this to the Rand is not altogether obvious, and it will be interesting to learn what Mr. Rickard may have to say upon the subject of the Rand banket formation. So far, although values have doubtless diminished to some extent—a matter which is not as certain as it might be, if one accepts the view of Mr. Hugh Marriott, who has written upon the subject of deep level values in the *S.A. Mining Journal* anniversary number with great cogency and the authority of personal knowledge and wide experience—there has not been any diminution of grade comparable to that of the instances quoted above. At depths of 5,000 feet Rand engineers have found no evidence sufficiently strong to shake their confidence in the future of the Rand Main Reef series. It is, however, purely a matter of probability, and the conclusions formed with regard to the, as yet, unpenetrated deeps are based entirely upon analogy, with no scientific data of any kind. As far as available evidence goes, nothing could be more encouraging than that of the long, narrow ribbon of profitable banket which stretches from Randfontein to Geduld, and all experience leads to the belief that surely the fringe alone of this extensive conglomerate series cannot be the limit of its richness. As we have observed more than once, however, the subject is much too important to the future of this country to be allowed to rest upon a basis of uncertainty. With so much evidence available, it should be possible for geologists to find ample matter for a study of the problem, and perhaps to arrive at a line of thought or to deduce some sound theory which might lead to the discovery of valuable truths.

New Rand, Ltd.

The manager of the New Rand, Ltd., is returning to the property, and boring will be resumed immediately on his arrival. The rocks encountered below the Karroo formation, which was passed through at a depth of 822 feet from surface, were: Diabase, from 822 feet to 906 feet; quartzite, from 906 feet to 915 feet; diabase, from 915 feet to 1,000 feet; quartzite, from 1,000 feet to 1,025 feet; diabase, from 1,025 feet to 1,161 feet. Mr. A. R. Sawyer intends examining these rocks on his return to South Africa.

Transvaal G.M. Estates

The following are particulars of the outputs of the mines comprising the Transvaal Gold Mining Estates for September:—Central Mines: Tons crushed, 12,700, yielding 8,261,216 fine ozs., valued at £34,953. Elandsdrift Mine: Tons crushed, 645, yielding 769,802 fine ozs., valued at £3,262. Vaalhoek Mine: Tons crushed, 1,355, yielding 641,574 fine ozs., valued at £2,713. Total value of month's output, £40,928; total estimated profit for the month, £25,648.

CHIEF PRODUCTIVE AREAS OF THE RAND.

Profit Made Over Various Sections—Results on a Stamp and Mill Basis—The Preponderance of the Further East.

DURING the month of August there was obtained, according to the Chamber of Mines Analysis for that month, a working profit of £1,052,451, the result of the operation of 9,140 stamps. These figures refer only to properties of which the names are given, on the Main Reef series, exclusive of the Spes Bona, which, being a private concern, does not send in a full statement. In addition to those named, there are the Rietfontein Mine and miscellaneous producers, none of which fall to be considered in the following remarks.

If the figures relating to working profit be plotted diagrammatically, taking the mines in their order of succession, from the Randfontein Central to Geduld, both inclusive, it will be apparent that they may be conveniently divided into several groups as follows:—

	Distance in Miles.	Total Stamps Working.	Total Working Profit.
Randfontein Central to Luipaards- vlei Estate	10	980	£92,639
Princess Estate to Consolidated Langlaagte	10	945	68,357
Langlaagte Estate to Village Main Reef	5	1,935	325,160
City and Suburban to Geldenhuys Deep	5	1,350	130,488
Simmer and Jack to Ginsberg ...	5	2,220	168,335
E.R.P.M. and Cinderella	3	900	90,789
N. Kleinfontein to Geduld	6	810	176,683
		9,140	£1,052,451
New Rietfontein		120	2,864
Spes Bona		40	—
Miscellaneous		105	—
		9,405	£1,055,315

Each group includes the mines referred to as forming the boundaries, and also the deep level properties upon the dip of the reef in that section. It will immediately be observed, in glancing at the tabulated statement, that the richest section of the Rand is that which lies immediately adjacent to the town of Johannesburg between the Langlaagte Estate and the Village Main Reef. Here the factors of high grade and moderate working costs have obviously a great deal to do with the excellent return in the way of profits, which make this portion of the Rand the most important along the whole line of reef. The Robinson, Ferreira Deep, and Village Main Reef have a recovery in the neighbourhood of 40s. per ton milled, while the costs at the Robinson are as low as 14s. 10d., and those at the Village Main Reef 17s., each lower than the average for the Rand. The stamping capacity, also, over this section is fairly considerable, and is, in fact, the second highest of all the sections, as will be seen from the table. The highest is that of the Simmer and Jack-Ginsberg section, but, while there are no fewer than twelve companies crushing in the latter area there are only seven in the former. The Langlaagte Estate group includes the Crown Mines, where there were 660 stamps running, out of 835, in August, and altogether, while this portion of the reef is the richest, it is also the most intensive as regards the quantity of work which is being carried on.

Eastwards from the Village Main Reef the profit-making capacity drops considerably, only the City and Suburban, Wolhuter, City Deep, Meyer and Charlton, and Nourse Mines making any mark at all in this respect. The recovery of the City Deep at 36s. 6d., and of the City and Suburban at 37s. 7d., stand out prominently in the Chamber of Mines list. The next section is better in point of total production, but on the basis of stamping capacity there is not so much

to be said. The Simmer and Jack, New Princess, Rose Deep, and the two Witwatersrand properties seem to keep up the profits of this portion of the reef, and it is to which they are largely helped by the stamping power of the group of mines, for there are a greater number of stamps in this section than in any other of those shown in the table. The East Rand Proprietary Mines and the Cinderella Consolidated, with 900 stamps, were responsible for £90,789 a profits; in fact, the last-named company may be disregarded in the August returns, a sum of no less than £90,450 having been provided by the E.R.P.M. Here again high recovery values and large stamping equipment have effected great things, the grade of the ore being 32s. 2d. and the crushing capacity 820 stamps. The Kleinfontein, Van Ryn, Modderfontein Area, with the Brakpan and Geduld as deep levels, come excellently out of the comparison which is shown in our statement. It has, indeed, done better, on a stamp basis, than even the rich area which includes the Robinson, Ferreira Deep, and Village Main Reef. With less than half the number of stamps this section produced a good deal more than half the total profit obtained in the third section of our table, and, with the exception of the Geduld, the individual profits of the mines concerned were all on a high scale. There were, moreover, including the Geduld, with a profit of £1,579 only, six producing mines as compared with seven in the former case. There remains to be remarked, also, that a large portion of the deep level ground, in contradistinction to the rich Johannesburg area, has not yet come into the active list.

A STAMP AND MILEAGE BASIS.

A more striking way of demonstrating the relative value of different portions of the Main Reef series is by means of a table drawn up upon a profit per stamp basis. The following statement shows the profit per stamp actually working during the month of August last, calculated over the various sections already described. To complete the comparison the calculation is also shown on the per mile basis.

	Profit per Stamp.	Profit per Mile.
Randfontein to Luipaardsvlei (Randfontein Central)	£94.5 (115.7)	£9,263.9 (13,498.5)
Princess Estate to Consolidated Langlaagte	73.3	6,835.7
Langlaagte Estate to Village Main Reef	168.0	65,032.0
City and Suburban to Geldenhuys Deep	96.5	26,097.6
Simmer and Jack to Ginsberg ...	75.5	33,667.0
E.R.P.M. and Cinderella	100.8	30,263.0
(E.R.P.M.)	110.3	30,150.0
New Kleinfontein to Geduld ...	218.0	29,446.4

In the case of the E.R.P.M. section the Cinderella Consolidated might justly have been omitted on account of the fact that the profit for August only amounted to £339, and it would be scarcely fair to add its 80 stamps to the total under these circumstances. The E.R.P.M. section, shown separately, the Randfontein Central is also excluded out from the statement, since its profit of £90,992 is sufficiently emphasised by being taken together with that of the four other properties in the section which, notwithstanding, were only responsible for £44,647. It will be seen, then, that the Johannesburg section of the Main Reef series stands out prominently above the others, none of the properties of the East Rand Proprietary Mines. At the extreme end of this line, as between the two latter and the former group, in evaluation, and it will be noted that the recovery per stamp of such is approximately the same. So, too, with the Rietfontein, Cinderella and City Deep sections, and the Geldenhuys Deep sections. The Simmer and Jack, and

line is slightly better than that of the Princess Estate-Consolidated Langlaagte portion, but neither are of any considerable importance. When we pass to the further East Rand the growing productivity of this comparatively new and only partly developed section becomes unmistakably pronounced. The profit per stamp from the Kleinfontein-Geduld section is nearly 30 per cent. greater than that from the richest portion of the Randfontein-E.R.P.M. line of reef. This fact demonstrates the excellent value of the ore mined in the further east. As has already been remarked, the deep levels of this area have scarcely yet come into prominence, since only the Brakpan Mines and Geduld are crushing. There have yet to come the Modder Deep, the Government Modderfontein, and other properties, before the activity of that part of the country can be said to be upon an equivalent basis to that of the older sections of the Rand. When this occurs the stamp-profit average will doubtless become somewhat diminished, but, on the other hand, the total profit of the section, and the mile-profit average, will increase in comparison with those of the other sections. The productivity of the Kleinfontein-Geduld section is destined to expand to a notable extent, while that of the sections west of the E.R.P.M. is, on the whole, fated to diminish to an appreciable degree, as far as can be ascertained from existing evidence.

A COMPARATIVELY SLOW PROCESS.

The process may not be very marked west of the Consolidated Langlaagte; indeed, for some time there will probably be an increase in the production of profits, for the Princess Estate and Consolidated Langlaagte have yet to come to their own in this regard, and, for the rest, they can scarcely do much less than they are doing at present. In the more central section, however, there are two properties with high recovery values, the Robinson, for instance, and the Village Main Reef, which, between them, obtained a profit of £109,379 in August last—or more than a third of that obtained by all the mines in that section of our table—whose lives can be conveniently reckoned on the fingers of one hand. In the next section, that from the City and Suburban to the Goldenhuis Deep, there is no good reason to suppose that the aggregate profits will be materially better over a long period than they are to-

day. Between the Simmer and Jack and the Ginsberg there are several mines whose end is not far distant. They are the Ginsberg, Glencairn, New Primrose, and May Consolidated—whose combined profits for August were £80,026—and it does not appear that along this line of reef there will be any remarkable improvement. In the next section, that of the E.R.P.M.-Cinderella areas, the deep level property has still to prove its worth, and here there may be a gratifying increase in the total profits of the two companies. Taking the whole line of the Main Reef series, however, from Randfontein to the E.R.P.M., there seems reason to suppose that the apex of prosperity has been reached, and that the general tendency will, at no distant date, be retrogressive rather than progressive. The process will not necessarily be a rapid one; the probability is that it will be slow and steady, but there can be little doubt that it will be distinctly apparent from year to year, as the workings recede from the outcrop, and become more and more located in the deeper levels.

AN UNTILLED FIELD.

In the further East Rand, however, the deep levels have still to be equipped and developed, and for a fairly long time to come the output from that region may be expected to be augmented over successive periods of years. The comparatively shallow depth of these deep levels from the surface, owing to the low angle of dip, will enable those properties which lie at a very great distance from the outcrop to be opened up at a small cost compared with claim areas at a much shorter distance away from the outcrop on the more central portion of the Rand, where the practical impossibility of starting independent undertakings from the surface in the future will cramp expansion very considerably. The centre of the producing activity of the Witwatersrand goldfields, it appears to us, is likely to move eastwards at no very distant date. Much depends, of course, upon the results to be obtained in the Government Modderfontein Areas and the Modder Deep Levels, and if these are as satisfactory as seem to be anticipated by those interested in them, there will be abundant justification for the development of those vast claim areas to the south-east, which are almost sufficient, as far as ground is concerned, to constitute in themselves a second Rand.

PROGRESS OF MANICALAND MINING.

A Review of Mining Development in the Territory.

According to the quarterly review of the Director of Mines in Manicaland, included in the current issue of the journal of the territory, the gold output for the quarter shows a small diminution over £400 in value on the value of the output of the last quarter of 1911, and approximately the same difference as compared to the average quarterly production of 1911. The diminution is to be ascribed to the disappearance from the list of producing propositions of the Central and of the Thursday Reef, and, in a larger degree, to the diminution in the output of the Chimwezi-Rhodes-Banket claims, which was not compensated for by a small increase in the output of the Guy Fawkes mine and by other small increases. The large decrease in the output of the Chimwezi-Rhodes-Banket claims is due to the rains that fell on this field in January, which seriously interfered with the working of this undertaking. The wet weather that invariably occurs during the first quarter of the year, in the months of January and February, is always partly accountable for a decrease in the output for this quarter of the year. It must, however, be noted that although the Guy Fawkes mine shows a slight increase in output in the quarter under review, as compared with the last quarter of 1911, the production of this under-lying would nevertheless have been considerably greater than has been the case had the tributors during the period of their tribute carried out sufficient

development and so been in a position to keep the battery running full time instead of the 42 days that it actually ran in the last quarter. There is no lack of ore in the claims. It is merely a question of expenditure in order to do the necessary work of development. During the first three months of the year a new property, named the South Firenze, has been added to the list of producers. This small property of 10 claims includes a portion of the claims formerly known as Citta de Firenze, and belongs to the same owner as do the Chesterford claims. It may be considered at present a small prospecting proposition, and it has a battery of stamps. The tributors on the Crocodile claims has not yet started regular crushing, owing to the development work not being sufficiently advanced. The Bragança mill still remains shut down pending development. The total length of driving along which reef is exposed in the 120 feet level is now approximately some 200 feet, and the manager states that he is exceedingly satisfied with the assay results of this ore-body. This ore-body has now been partly blocked out between the 120 feet level and the surface. The shaft has not as yet been carried below this level. The printing of the English translation of the amended Mining Regulations, referred to in the last "Quarterly Review," was completed in London, in December, and a large number of these translations have now been distributed by the Companhia de Moçambique. The translation

is furnished with side-headings and two very complete indices, viz., an index to articles and an alphabetical index. A mining handbook, containing a short description of the Macequee mining field, has also been completed, and was printed in Europe during the latter portion of last year. This handbook is furnished with various maps, including the geological map, on a reduced scale, of the Macequee mining field, elaborated by Mr. A. R. Sawyer. The handbook also includes a succinct account of the main points of the territory. A set of new orders complementary to the Mining Regulations has lately been issued. The important work of prospecting alluvials, undertaken by the Andrada Mines, Ltd., was energetically pushed forward until the commencement of the wet season, and will be resumed in

the coming quarter, probably towards the end of March. The work hitherto done has been confined to the portions of the valley of the Revere River, viz., that part lying between Mr. Dumat's claims and the Bolelele mine, that is to say, from a point some 2½ kilometres above the junction of the Zambuzi with the Revere, to a distance of more than five kilometres below this junction. The extent of the alluvial deposits on the Macequee field is very great, as these comprise not only a large portion of the valley of the Revere, but the lower portions of two valleys of important rivers within the boundaries of the field. Should these vast deposits prove to be payable, the exploitation of the alluvials will constitute a most important step in the development of mining enterprise in this locality.

THE MINING INDUSTRY OF KATANGA.

Obstacles to Prospecting—The Difficulties of the Smelting Problem—The Union Minière Monopoly.

In his annual report for 1911, the British Consul for Katanga has the following:—During the year 1911 one hundred and eleven prospecting licences were issued and one hundred and thirty-six claims pegged (precious metals twenty-six; other mineral substances, chiefly copper and iron, one hundred and ten), of a total area of 217,916 hectares. No exact details are forthcoming as to the nationality of the prospectors, but, roughly speaking, about twenty-eight out of the one hundred and eleven were British, and of this number eighteen were in the employ of Belgian companies, three in that of the Tanganyika Concessions, Ltd., and the remaining seven were working independently, though it must be added that at least two of them are in the private employ of a Belgian. Of the claims pegged, fifty-seven were granted to British subjects of a total area of 97,026 hectares (precious metals, 863·5 hectares; other mineral substances, 96,162·5 hectares). Of these sixty-seven claims, seventeen were granted to British subjects working on behalf of Belgian companies, and the remainder to independent prospectors. It is too early as yet to gain reliable information as to the value of the recent discoveries made, but it is generally admitted that, with the exception of gold and diamonds, several years must elapse before deposits of minerals, of whatever value, which lie beyond the territory controlled by the Union Minière, can be worked at a profit. A few claims have been pegged out in the district through which the railway from Sakania to Elizabethville runs, but the majority are distant from transport facilities, and it is obvious that copper, tin, and iron cannot be worked under such conditions. No important gold discoveries have been made of late, as far as is known, while work on the Kundelungu diamond pipes has been so handicapped by lack of labour that no opinion can be given as to their value.

Prospectors have, in short, been disappointed. They are aware on their arrival that the country is far from the coast and that working expenses are bound to be heavy, but they do not take into account the fact that the most highly mineralised portion of the Katanga, to the extent of one-third of the district, is in the hands of the Union Minière, and as they work their way to the regions beyond the main copper belt they find their difficulties and expenses increase far more than they expect, owing to the high price paid for carriers at Elizabethville and the scarcity of food for the first hundred or hundred and fifty miles. The smelting of the copper ore at Elizabethville is still in the experimental stage. On the arrival of the railway at the Star of the Congo, the Union Minière proceeded to set up a smelter at the Lubumbashi for the treatment of the ore by blast furnaces. The smelter started to work regularly in August, 1911, and continued until the end of November, when the lack of fuel caused a stoppage, and a delay occurred which was prolonged by an accident which took place in December. Work was resumed in January, 1912, and continued till the

end of February, when the supply of fuel again failed. The arrival of five hundred tons of coke towards the middle of March enabled operations to be continued for another three weeks, but no further supply is on order, and it is expected that the smelter will be closed down in April for five or six months. Up to the present time coke has been imported from Europe at the cost of £12 per ton landed at Elizabethville, but an arrangement for the supply of either coal or coke from the Wankie Colliery, which is situated on the main line between Bulawayo and Livingstone, is under consideration, while some favour the use of electricity. It is presumed that the Board is discussing the question in the light of a report furnished by a Special Commission which visited the Katanga in November, 1911, and it is clear to all that expenditure must be decreased if any substantial profits are to be made. None the less, it is disappointing that the work should suffer at the precise moment when satisfactory results are being obtained. During January and February, 1912, over ninety-eight tons of bar copper were obtained in one week at the rate of two and a half tons of coke per ton of copper. Latterly the coke has been washed before smelting, with the result that twenty-five tons per diem have been produced. The copper has fetched £60 per ton at Antwerp. A small plant has recently been put up for the treatment of the ore by the reduction process, using charcoal, which is procurable in the vicinity, as fuel, and experiments will no doubt be carried on with this plant when the smelter is closed.

PROSPECTS.

However depressing the present outlook may seem, the future of a district so rich in minerals cannot be doubted for a moment, but for the attainment of prosperity two points are essential. In the first place the Government must seek to attract a good class of men. Secondly, the mineral belt must be thrown open. At present one of the richest copper deposits in the world is affording a meagre subsistence to a mere handful of men. It would be far more satisfactory were the Union Minière to consent to control the smelting of the ore and submit the rest to outside companies. Smelters could be erected on the railway near the principal mines, or, if electricity is to be the motive force, in the vicinity of the rivers, while the companies must send the ore for treatment, and the improvement work could be undertaken without delay. By this means, provided that the Government find a satisfactory solution of the labour problem, prosperity and the opening up of the country would be assured, for roads would be made and light railways constructed, and smelters would spring up in places where absolutely no work exists at the present time beyond vast supplies of copper ore lying useless and untouched.

THE TIN POSITION.

Growing Consumption and Laggard Production—Increasing Demand and Advancing Prices—"The Statist" on the Outlook.

For some time past the *S.A. Mining Journal* has remarked, at different times, upon the strong position of the tin market, in spite of the manipulation which is constantly affecting it in a greater or less degree, and has pointed out that the strength of the position has been dependant upon the relation existing between supply and demand, and upon the fact that in spite of excellent inducements to increase production the response to big prices has been of a somewhat feeble kind. With copper, on the other hand, an increase of price, following upon a short supply, would be the signal for a feverish increase in production, and it would not be difficult to control an excess of speculation in this metal by means of the numberless sources of supply that could be tapped at various stages in the ascent of the selling price. There is not this danger in the case of tin, at least it is not apparent to any one at present. There are no temporarily abandoned tin mines to be opened up, and very few from which the output can be materially augmented in response to the cry for more metal. The supply, in a word, does not equal the demand, and seems unlikely to catch up with it unless production is very greatly increased.

The Statist, in view of the obvious condition of things, has been at some pains to collect statistical data with regard to the movement of tin supplies and ruling prices over the last thirty years or so, and publishes an interesting diagram which we are unable to reproduce conveniently. The following remarks, however, sum up the position concisely and accurately:—

"In recent years tin has touched high prices that have not been witnessed for a very long period. Going so far back as 1850 we find a price of £70 per ton, and variations between the maximum of £160 in 1872 and a minimum of £52½ in 1878, with huge variations for a long period of years afterwards, until, as we have said, in recent years we have witnessed very tall figures indeed, the price last year momentarily touching £233. After a good deal of wobbling of late, the price has been steadily trending upwards. It is an open secret that, after quicksilver, perhaps, tin is the most manipulated of any of the base metals. With quicksilver the policy is adopted of keeping a steady, almost unvarying, price. With tin it is not the same, as witness the erratic fluctuations indicated in the chart we give herewith covering the period since 1880:—

Tin	Highest	Lowest.	Average of Year.
	£	£	£ s. d.
1906	215 May	161 March	180 12 6
1907	200 July	115 Dec.	172 12 9
1908	117 March	118 Jan.	133 2 6
1909	156 Dec.	123½ Feb.	134 15 6
1910	176½ Dec.	143½ March	155 6 2
1911	233 June	169½ Sept.	192 7 0
1911—Average price, June half, £193 1 2			
Average price, Dec. half, £191 13 6			
1912 (to date) £228 Sept. £189 Jan.			
1912—Average price, Sept. half, £199 4 9			

"Those people who are not intimately acquainted with metal statistics have marvelled at the high range of price and strength of the market for tin. Here again, as with other base metals, the reason is the growth of consumption without corresponding growth in the production of the world. The source of supply of tin ore, compared with, say, a metal such as copper, very restricted. The demand is one that steadily expands as the world grows older and population increases. It may be true that all along in modern history tin has been a market manipulated commodity. None the less, the quotations rest on the relative quantities of production and demand. Expansion in production is not readily brought about; new fields of discovery are very restricted; ability to increase production on a large scale in the main Far Eastern quarter of supply, Malaya—has been to some extent affected, partly by areas becoming denuded, and

partly by reason of competition for native labour consequent on the drawing of labourers from the tin-fields to rubber, etc., plantations. Cornwall, though the last few years it has begun to wake up, has not yet fully done so, for undoubtedly there are there large deposits of tin that could be profitably worked on a very much greater scale than they are now. As for Nigeria helping in providing supplies of tin, it is, after all, but a tiny producer.

"The following are approximate figures taken from a compilation recently forwarded us by Messrs. H. R. Merton & Co.:

Estimated World's Production and Consumption of Raw Tin (metric tons).

	Production. Tons.	Consumption. Tons.
1911	118,200	117,400
1910	115,700	121,300
1906	104,400	107,800
1901	95,000	87,000

The order of magnitude of the leading producing countries in 1911 was approximately:

Straits, Banka and Billiton	75,000 tons.
Bolivia	22,500 tons.
Australia	5,100 tons.
Cornwall	4,500 tons.

A new entrant as a producer—South Africa—sent out approximately one-half as much as Cornwall produced. China is not a negligible quantity, giving a yield for 1911 of about 6,000 tons; but head and shoulders above the combined Cornish, South African and Chinese productions stands Bolivia, which is credited as supplying Europe in 1911 with nearly 23,000 tons, a larger production, we believe, than ever heretofore witnessed in regard to that country. Malaya and the Dutch Indies produce about three-fourths of the total tin required for the consumption of the world.

"It is of interest to note that the copper produced is not far removed from about nine times the quantity of tin that is required for the world's consumption. But we may emphasise that the factor which dominates the recent remarkable strength of the market for tin is that the rate of consumption has on the whole been greater than the rate of production; and there is no present indication of this position being reversed, for use continues, and production, though it expands, does not do so to an extent to keep the price down to a lower level than the high prices recently attained.

"A factor of the recent past dominating the market is that the supplies available in stocks afloat and in hand have been small, being now pulled down, as regards American and European statistics, to under 12,000 tons. The figures respecting European and American supplies and deliveries also the stocks at end of each year, and, in respect of the latest statistics, at end of August, are set out below:

European and American Supplies and Deliveries included in Statistics of Messrs. Ricard and Fricwald (Tons of 2,240 lb.).

	Supplies.	Deliveries.	Excess of Supply.	Excess of Deliveries.	Stock and Visible Dec. 31.
	Tons.	Tons.	Tons.	Tons.	Tons.
1907	72,625	72,801	—	179	12,039
1908	80,061	72,735	7,269	—	20,268
1909	78,119	77,790	329	—	20,537
1910	74,527	77,951	—	3,424	17,113
1911	76,293	76,871	—	581	16,532
1912*	52,858	57,530	—	4,672	11,857

*Eight months. †August 31, 1912.

It has to be noted in the above table that the production or exports of South America, China, Cornwall, South Africa and Nigeria do not figure."

OUTSTANDING FEATURES OF THE SEPTEMBER RETURNS.

A Somewhat Colourless Month—Steady Progress of Some Individual Mines.

Among the more salient features of the September output the following may be noted:—

City Deep.—The profit for the month was £22,185, as compared with one of £26,181 for the month of August. The quantity milled was 37,000 tons, or 1,500 tons less than in the previous month. The reduced tonnage is said to be merely a temporary circumstance. Working costs were 25s. 11½d., as against 23s. 5d. for August.

Modder B.—The following statement shows the progress of the Modder B during the past three months:—

	Tons Milled.	Revenue.	Profit.	Working Costs per Ton Milled.
July	33,780	£65,923	£35,931	17 9
August	31,770	65,886	35,973	17 2
September	31,820	55,812	29,413	16 7

It is explained that the lower profits are due to decrease in the grade and tonnage.

New Modder.—A strikingly different state of things is shown at the New Modder, as the accompanying table will show:—

	Tons Milled.	Revenue.	Profit.	Working Costs per Ton Milled.
July	11,500	£81,670	£38,488	20 10
August	39,850	99,685	48,141	21 2
September	10,350	89,754	48,617	20 4 7

Village Deep.—Profits have risen from £16,385 in July and £25,306 in August to £26,998 in September. Costs were slightly reduced.

Geldenhuis Deep.—Profits were £5,669 in July, £4,019 in August, and £6,726 in September.

Nourse Mines.—This mine has lapsed somewhat in the matter of profits, the figures for the last four months being £25,842, £26,142, £27,563, and £25,545. They were only £18,172 in January, however, and the set-back can probably be regarded as momentary.

Durban Deep.—The Durban Re-Work Deep profit has fallen to £6,210 from £9,908 in August. This decrease is said to be due to decrease in grade and tonnage.

Cinderella Consolidated.—It is gratifying to find that things improved last month at the Cinderella Consolidated, the profits having risen from practically nil in July and August to £2,328. It is to be hoped that this satisfactory situation that the mine is gradually overcoming its working difficulties underground.

Van Ryn.—The Van Ryn profit at £24,001 is just £1 higher than in August. The mine is running successfully and well.

Geduld.—The Geduld at £5,017 has at last exceeded the £5,000 profit limit. Profits in January were £3,927.

Witwatersrand.—The profit for September was £20,998, an improvement for the month, which shows that the steady progress since January, when the figure was £15,845, has been well maintained.

Robinson Deep.—The Robinson Deep, with a profit of £31,009 for September, has still a little headway to make before the average of the last nine months is attained. In September, 1911, the figure was £38,867, in January £35,584, in May, £35,812. Profits then fell by a couple of thousand pounds or so for the next three months, and were £33,021 in August. In addition to the above, £6,652 were obtained from old mill plates and put to renewals fund.

Knights Deep.—The fire at the Knights Deep and Summer East crusher station of necessity disorganised matters to some extent, the Knight Deep profits for the month falling from an average of about £17,000 to £11,026. Normal results are expected for October.

Witwatersrand Deep.—Profits for the last nine months have risen from £12,111 in January to £19,822 in September, a fairly steady advance being recorded.

Main Reef West.—Profits fell from £11,676 in July and £11,009 in August to £8,129 in September. An official note states that the decrease was due to the number of native labourers falling below the average of the past few months.

Robinson Group.

The following are the results of operations by the Robinson Group for September:—Langlaagte Estate: Tons milled, 52,691; total yield, 15,061 ozs.; estimated profit, £17,499; profit per ton milled, 6s. 7½d. Randfontein Central: Tons milled, 201,652; total yield, 61,196 ozs.; estimated profit, £80,606; profit per ton milled, 7s. 11½d. Total tons milled, 254,343; total yield, 76,257 ozs.; estimated profit, £98,105. The profits for the past three months are: July, £76,029; August, £97,502; September, £98,105.

Rooiberg Minerals.

The following are the particulars of estimated results of operations on the Rooiberg property for the month of September: Stamps, 10; days run, 29; tons milled, 3,971; concentrates, 100 long tons; average assay value metallic tin, 69.88 per cent.; estimated profit, £6,984; adjustments due to fluctuations in the price of tin to be added in respect of May shipments, £112; net profit for month, £7,126. The concentrates in reserve at September 30 amounted to 17.33 long tons (2,210 lbs.) of the net value of £1,616. £2,626 has been included in working costs for the month in respect of shaft sinking, exploration and mine development. The tonnage milled includes 1,210 short tons of sands re-treated.

Premier Diamonds.

The sixteenth dividend on preference shares of 125 per cent., or 6s. 3d. per share, for the half-year ended October 31, 1912, will be payable to all shareholders registered at the close of business on that date.

Jumpers-cum-Treasury.

The following is the result of the joint working of the Jumpers and Treasury Mines during last month: 60 stamps working 21 days, crushed 5,900 tons, yielding 1,666 ounces of fine gold from 11,963 ounces of fine gold from tonnage by cyanide, 270 ounces of the gold from cyanide slimes, 64 318 ounces of fine gold from accumulated slimes, total from all sources, 3,217 ounces of fine gold. Value of the output, £13,511; joint profit for the month, £1,503; plus profit of £10 gold reserve at end of last month, 842 ounces of fine gold.

Brakpan Mines.

The following statement with respect to the September output of the Brakpan Mines, Ltd., has been officially published: Stamps working, 150; running time, 27 days; crushed, 58,200 tons; tube mills working, 7 days, 66,783 tons; ore from dump, 1,375 tons; average yield of fine gold per ton of fine gold milled, 21.365 ozs.; value of output, £90,255; equal to 31s. per ton milled; average yield of fine gold per ton of ore, 17s. 3d.; per ton milled, 17s. 3d.; value of output, £10,131, equal to 13s. 9d. per ton milled.

RAND MINES' SUBSIDIARIES: A QUARTER'S RESULTS.

The following is a tabulated summary of the working operations of certain of the companies in which the Rand Mines, Ltd., holds shares for the financial quarters ended 30th April and 30th June, 1912:—

MINE	JUNE 30, 1911.										APRIL 30, 1912.	
	Rand Mines, Ltd.	Goldfields, Ltd.	Deepest, Ltd.	East Rand, Ltd.	Deepest, Ltd.	Deepest, Ltd.	Deepest, Ltd.	Deepest, Ltd.	Deepest, Ltd.	Deepest, Ltd.	Deepest, Ltd.	Deepest, Ltd.
Development Work—												
No. of feet driven, sink and rise, exclusive of stopes	3,178	7,023	3,633	12,059	1,041	4,621	5,075	6,111	4,071	1,439	11,270	3,600
Distance exposed (feet)	964	1,525	18	345	1,255	3,177	—	—	—	770	—	—
Width (inches)	40 1/2	16	10 1/2	36	21	10	—	—	—	112 1/2	—	—
MAINS LAYERS—												
Distance exposed (feet)	967	2,219	1,312	3,680	—	—	3,470	2,366	335	—	—	2,204
Width (inches)	13 1/2	11	35	22	—	—	20	35	11	—	—	—
Assay value	77 1/2	82 1/2	84 1/2	65 1/2	—	—	102 1/2	17 1/2	85 1/2	—	—	—
Distance exposed (feet)	949	2,033	1,365	1,830	1,830	1,830	35	1,037	1,765	—	—	—
Width (inches)	12 1/2	19	20	22	22	22	22	22	22	—	—	—
Assay value	40 1/2	5 1/2	11 1/2	54 1/2	12 1/2	12 1/2	21 1/2	33 1/2	92 1/2	—	—	—
Reduction Works												
Ore received from Mine (tons)	228,157	102,496	102,496	543,776	89,181	147,492	113,968	172,947	81,266	108,761	326,511	62,589
(Ore received from Surface Bumps) (tons)	150	391	174	12 1/2	189	93	26,116	135	12	109	107	12 1/2
Waste sorted out (per cent.)	190,300	103,600	103,600	474,100	73,300	132,470	119,360	149,760	71,070	95,660	173,250	51,612
Number of stamps operating	30	200	185	600	100	180	110	180	78	80	820	276
Value of ore before crushing	184,941	97,604	308,291	228,621	218,110	298,841	258,291	298,291	178,291	218,291	298,291	218,291
Assay value of pulp	184,941	184,941	184,941	184,941	184,941	184,941	184,941	184,941	184,941	184,941	184,941	184,941
Total yield (fine ore)	68,507	31,364	31,364	31,364	31,364	31,364	31,364	31,364	31,364	31,364	31,364	31,364
Accumulated slimes treated (tons)	2,761	1,780	2,370	378,110	206,741	398,141	336,141	298,141	298,141	378,141	338,241	338,141
Accumulated slimes yield (fine ore)	—	—	—	—	—	6,445	6,990	—	—	—	—	—
Working Expenses												
Cost per Ton Milled	£174,778	£209,680	£128,086	£434,682	£49,384	£130,283	£102,520	£145,046	£25,788	£26,404	£260,109	£28,553
Revenue												
Value of Gold produced	£280,496	£253,817	£253,817	£756,107	£111,691	£263,297	£294,075	£299,305	£103,349	£173,293	£785,985	£39,061
Value per Ton Milled	£1 9 6	£1 11 0	£1 11 0	£1 11 0	£1 10 6	£1 19 5	£1 11 1	£1 8 0	£1 8 11	£1 13 2	£1 13 10	£1 10 1
Working Profit												
Per Ton Milled	£107,218	£46,737	£130,380	£321,415	£22,310	£133,944	£191,555	£14,349	£17,761	£91,769	£85,876	£31,108
Other Sources												
Debit	£168	£1,811	£1,811	£50,489	£467	£2,454	£2,454	£2,454	£2,454	£2,454	£2,454	£2,454
Credit	£168	£1,811	£1,811	£50,489	£467	£2,454	£2,454	£2,454	£2,454	£2,454	£2,454	£2,454
Net Profit	£104,150	£48,640	£132,491	£311,926	£24,623	£126,368	£191,611	£165,166	£18,207	£29,640	£118,210	£14,655
Capital Expenditure												
Cash Position												
Less Cash—Assets (Stores, Live-Stock, etc.)	£22,872	£22,872	£22,872	£22,872	£22,872	£22,872	£22,872	£22,872	£22,872	£22,872	£22,872	£22,872
Balance Sheet after allowing for Liabilities	£39,019	£39,019	£39,019	£39,019	£39,019	£39,019	£39,019	£39,019	£39,019	£39,019	£39,019	£39,019
Financial Position, Dr. Balance Sheet	£10,782	£10,782	£10,782	£10,782	£10,782	£10,782	£10,782	£10,782	£10,782	£10,782	£10,782	£10,782
And Cash Assets (Stores, Live-Stock, etc.)	£16,147	£16,147	£16,147	£16,147	£16,147	£16,147	£16,147	£16,147	£16,147	£16,147	£16,147	£16,147
Balance Net Cash Liability	£16,147	£16,147	£16,147	£16,147	£16,147	£16,147	£16,147	£16,147	£16,147	£16,147	£16,147	£16,147
Interim Dividends Declared												
On Books as at—	June 29, 1912	June 29, 1912	June 29, 1912	June 29, 1912	June 29, 1912	June 29, 1912	June 29, 1912	June 29, 1912	June 29, 1912	June 29, 1912	June 29, 1912	June 29, 1912
Rate per cent.	22 1/2	10 1/2	10 1/2	5 1/2	5 1/2	12 1/2	12 1/2	12 1/2	12 1/2	12 1/2	12 1/2	12 1/2
Total amount of distribution	£157,500	£58,575	£58,575	£57,058	£22,000	£175,000	£175,000	£175,000	£175,000	£175,000	£175,000	£175,000

* Including Accumulations.

† Exclusive of the proportion of an annuity payable to the Government in respect of mining rights acquired under certain claims.

‡ Including special declaration of Reserve Gold.

THE SEPTEMBER OUTPUT IN DETAIL.

Increased Return for the Shorter Month—Some Features.

THE gold output for the Transvaal for September was declared by the Chamber of Mines this week at 747,893 ozs. of fine gold, of the value of £3,176,846, which is a decrease of 16,811 ozs., value £71,549, on the August return. The return for September is somewhat better than for August, notwithstanding the apparent decline, which is not quite the value of three-fourths of an average day's work less than for the previous month's thirty-one day's work. The Witwatersrand yield of 716,495 ozs., value £3,043,475, which shows a decrease of 15,702 ozs., value £66,701, is about two-thirds below the average of the longer month, and is, therefore, on the right side. The contribution from outside districts of 31,398 ozs., value £133,371, which shows a decrease of 1,142 ozs., value £1,848, compared with August is accounted for entirely by the heavy decrease from miscellaneous producers, which worked 59 stamps less than in the earlier month. Despite a decrease in production, which is, of course, reasonable, the profit side is again to the good. Though the total of the group returns does not disclose an advance on the records established in May and June, they are better than either July or August, and the third best daily average in the history of the Rand. The labour complement presents for the first time for four months an increase, albeit a small one, over the previous month on the numbers of natives employed, which is probably due to some extent to the inclement weather which has been lately experienced and the lack of rain.

SALIENT FIGURES.

The following are the leading figures for the month:—

Total output	747,893 ozs.
Value	£3,176,846
Decrease	16,814 ozs.
Value	£71,549
Rand output	716,495 ozs.
Value	£3,043,475
Decrease	15,702 ozs.
Value	£66,701
Outside districts	31,398 ozs.
Value	£133,371
Decrease	1,142 ozs.
Value	£1,848
Total stamps	9,970
Decrease	39
Rand	9,405
Outside districts	565
Decrease	39
Tube mills	273

LABOUR.

There is an increase for September of 1,063 according to the Witwatersrand Native Labour Association's figures compared with August, on the total employed on gold, coal and diamond mines. There is an increase on gold mines of 1,628 and an increase on coal mines of 17, while diamond mines decreased their complement by 182. The figures for the past three months of the number employed by members of the W.N.L.A. at the end of each month read:

	July.	August	September.
Gold mines	182,925	179,111	180,739
Coal mines	8,497	8,766	8,783
Diamond mines	15,834	15,934	15,752
Totals	207,256	203,811	205,274

THE STAMP POSITION.

The stamp position for the whole of the Transvaal shows a decrease of 39, but all of which must be accounted for by the outside districts are responsible. On the Rand the increases and decreases balance one another, but there were two more tube mills working and one more in outside districts. The details of changes are as follows: Rand—Increases: City Deep, 10; City and Sumner, 5; Ayr Ryn, 5; total, 50. Decreases: Consolidated Main Reef, 10; Main Reef West, 10; New Kleinfontein, 10; Robinson Deep, 20; total, 50. Outside. Decreases: Miscellaneous producers, 59. Re-entrant, Sheba-Rosetta, 20; total, 39. There were 261 tube mills operating on the Rand and 9 in outside districts.

THE FIRST DOZEN COMPANIES.

The mines comprising the twelve leading companies in production for September are, with one exception, the Village Deep dropping out for August, resuming its place on the list—the same as for August. The order of production is, however, altered. Crown Mines displaces the East Rand Proprietary Mines for second place, while New Modderfontein goes up from eighth to sixth place and Rose Deep falls back from sixth to eighth. With the substitution of the Robinson Deep for the Village Deep, the order of highest yield remains the same. A comparison of the totals with August shows the aggregate number of stamps worked was the same, but two more tube mills were in commission. The tonnage milled was 22,705 less than in the previous month, and the value produced was £36,522 short of the August total. The following are the details of production:

	Stamps.	Tube Mills.	Tons Crushed.	Value
Randfontein Central	700	29	201,652	£259,944
Crown Mines	660	25	156,300	247,366
East Rand Proprietary	820	25	140,800	210,931
Ferreira Deep	225	17	53,110	106,265
Robinson	250	6	51,100	101,457
New Modderfontein	180	7	40,350	91,725
Brakpan Mines	150	7	58,200	90,753
Rose Deep	300	7	64,400	89,708
Village Main Reef	220	5	42,860	84,768
Nourse Mines	260	7	54,700	82,849
Simmer and Jack	320	7	75,700	81,777
Robinson Deep	180	8	47,400	81,595
Totals	4265	140	986,632	£1,557,488

GROUP PROFITS.

The following are the profits returned for July, August and September by the mines controlled by the principal groups:

	July	August	Sept.
Rand Mines	£229,749	£255,747	£241,002
Eckstein group	241,295	220,285	226,878
Gold Fields group	113,525	97,434	99,442
Robinson Group	76,029	97,562	98,174
East Rand Proprietary	91,262	90,470	87,771
Barnard group	68,341	69,525	69,600
General Mining group	60,198	67,984	69,415
Newmont group	61,579	58,600	60,212
Cons. Mines Selection	41,977	39,883	39,607
Kleinfontein group	22,509	21,768	21,768
Georg group	13,185	14,670	14,670

Total £1,018,880 £1,028,000 £1,028,000

INCREASES AND DECREASES.

The following returns of the September output have been filed with the Chamber of Mines. Increases and decreases compared with August are appended:

The Witwatersrand.

	Aug. £	Sept. £	Inc. £	Dec. £
Aurora West	18,261	18,083	—	178
Brakpan Mines	93,144	90,753	—	2,391
Bantjes Consolidated	36,760	36,382	—	378
Cinderella Consolidated	22,823	23,656	833	—
Consolidated Main Reef	33,311	32,185	—	1,126
City and Suburban	52,931	50,896	—	2,035
Consolidated Langlaagte	31,786	32,164	378	—
City Deep	77,139	72,284	—	1,855
Crown Mines	247,380	245,366	—	1,372
Durban Roodepoort	15,449	14,922	—	527
Durban Roodepoort Deep	41,369	36,938	—	4,431
East Rand Proprietary	254,783	240,931	—	13,852
Ferreira Deep	105,595	106,265	760	—
Ginsberg	21,544	21,344	—	199
Geduld	19,527	19,000	—	527
Glencairn Main Reef	16,570	16,927	327	—
Geldenhuis Deep	71,086	72,526	1,440	—
Jupiter	11,258	18,475	7,217	—
Jumpers-cum-Treasury	14,922	13,504	—	1,418
Knights Deep	13,960	45,362	1,402	—
Knight Central	28,681	28,591	—	90
Laupardsvlei Estate	17,543	16,592	—	951
Lancaster West	21,676	19,756	—	1,920
Langlaagte Estate	64,166	63,975	—	191
Main Reef West	32,671	28,583	—	4,108
May Consolidated	17,760	16,885	—	875
Meyer and Charlton	32,962	30,065	—	2,897
Modder B.	66,672	56,711	—	9,961
New Goch	28,150	26,336	—	1,814
New Heriot	21,774	22,169	395	—
New Kleintontein	73,388	68,002	—	5,386
New Unified	17,025	16,689	—	336
New Modderfontein	92,507	91,725	—	782
New Rietfontein Estate	20,334	19,595	—	739
New Primrose	36,591	36,250	—	344
Nourse Mines	86,858	82,899	—	3,959
Princess Estate	26,892	25,920	—	972
Rose Deep	95,115	89,708	—	5,407
Roodepoort United	30,244	28,829	—	1,415
Robinson	102,498	101,457	—	1,041
Robinson Deep	74,169	81,595	7,426	—
Randfontein Central	265,585	259,944	—	5,641
Simmer Deep	45,119	45,837	718	—
Simmer East	27,899	29,207	1,308	—
Simmer and Jack	85,235	81,777	—	3,458
Spes Bona	6,873	6,182	—	391
Village Deep	78,035	75,312	—	2,693
Van Ryn	51,460	51,902	442	—

	Aug. £	Sept. £	Inc. £	Dec. £
Village Main Reef	87,707	84,768	—	2,939
Vogelstruis Estate	12,191	11,894	—	297
West Rand Consolidated	39,704	39,198	—	506
Witwatersrand	45,918	45,825	—	93
Wolhuter	37,354	37,779	425	—
Witwatersrand Deep	54,222	57,332	3,110	—
West Rand Central	3,797	3,653	—	144
Miscellaneous producers	19,512	19,239	—	273

Outside Districts.

	Aug. £	Sept. £	Inc. £	Dec. £
Barrett	1,130	990	—	140
Glynn's Lydenburg	7,527	8,623	1,096	—
Nigel	18,669	18,516	—	123
Sheba	13,588	13,724	136	—
Sheba—Rosetta	—	1,461	1,461	—
Sub Nigel	9,821	8,636	—	1,185
Transvaal G.M. Estates	41,317	42,915	1,568	—
Worcester Exploration	5,110	4,719	—	421
Miscellaneous producers	40,997	33,757	—	7,240

OUR MONTHLY TABLE.

The following is our usual monthly table:—

Company.	Tons Mined.	No. of Stamps.	Total Gold obtained. Fine Ozs.	Total value.
Aurora West	11,430	80	4,257	£18,083
Bantjes Consolidated	22,910	85	8,565	36,382
Brakpan Mines	58,200	150	21,365	90,753
City Deep	37,000	150	17,017	72,284
City and Suburban	26,529	150	11,982	50,896
Cinderella Consolidated	18,940	80	5,569	23,656
Consolidated Langlaagte	19,508	140	7,572	32,164
Consolidated Main Reef	21,198	100	7,577	32,185
Crown Mines	156,300	600	57,764	245,366
Durban Roodepoort	13,976	90	3,513	14,922
Durban Roodepoort Deep	21,570	100	8,696	36,938
East Rand Proprietary	140,800	820	56,720	240,931
Ferreira Deep	53,110	225	25,017	106,265
Geldenhuis Deep	48,100	300	17,734	72,526
Ginsberg	11,335	80	5,025	21,344
Glencairn Main Reef	20,829	160	3,985	16,927
Geduld Proprietary	13,600	50	4,473	19,000
Jupiter	39,300	90	11,412	48,475
Jumpers-cum-Treasury	5,900	60	3,179	13,504
Knights Deep	38,874	250	10,679	45,362
Knight Central	22,570	105	6,731	28,591
Lancaster	19,500	100	4,651	19,756
Langlaagte Estate	52,691	200	15,061	63,975
Laupardsvlei Estate	15,360	60	3,906	16,592
Main Reef West	17,958	90	6,729	28,583
May Consolidated	15,020	100	3,975	16,885
Meyer and Charlton	13,811	75	7,078	30,065



Company.	Tons Milled.	No. of Stamps.	Total Gold obtained, Fine Ozs.	Total value.
Modderfontein B.	31,820	80	13,351	56,711
New Goch	26,391	120	6,200	26,336
New Heriot	11,500	70	5,219	22,169
New Kleinfontein	48,200	210	16,009	68,002
New Modderfontein	10,350	180	21,591	91,725
New Primrose	21,700	160	8,531	36,250
New Rietfontein Estate	15,700	120	1,613	19,595
New Unified	11,510	60	3,929	16,689
Nourse Mines	51,700	260	19,516	82,899
Princess Estate	19,500	60	6,102	25,920
Robinson	51,100	250	23,885	101,457
Robinson Deep	17,100	180	19,202	81,595
Randfontein Central	201,562	700	61,196	259,911
Roodpoort United	27,200	50	6,787	28,823
Rose Deep	61,400	300	21,119	89,708
Simmer Deep	52,000	130	10,791	15,837
Simmer and Jack	75,700	320	19,252	81,777
Simmer East	34,326	150	6,876	29,207
Spes Bona Tribute	5,964	40	1,526	6,482
Van Ryn	38,660	135	12,925	51,902
Village Deep	47,200	180	17,737	75,342
Village Main Reef	42,860	220	19,956	84,768
Vogelstruis Estate	10,690	70	2,800	11,894
West Rand Central	1,910	20	860	3,653
West Rand Consolidated	26,000	100	9,228	39,198
Witwatersrand	39,750	220	10,788	45,825
Witwatersrand Deep	37,730	215	13,197	57,332
Wolluter	27,600	120	8,891	37,779
Miscellaneous producers	—	—	1,529	19,239

HEIDELBERG—

Nigel	12,900	75	1,366	18,543
Sub Nigel	4,646	30	2,033	8,636

BARBERTON—

Barrett	—	—	233	990
Sheba—Rosetta	879	20	341	1,161
Sheba	5,860	65	3,231	13,721
Worcester Exploration	4,950	10	1,111	1,719

LYDENBURG—

Glyn's Lydenburg	3,551	20	2,030	8,623
Transvaal G.M. Estates	14,700	75	10,103	42,915

KLERKSDORP—

Miscellaneous producers	—	565	7,917	33,757
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The Albu Group.

The following information regarding the September operations of the producing mines of the Albu group is published:

Company.	Stamps.	Tube Mills.	Tons Crushed.	Total Cost.
Aurora West	80	—	11,130	£13,922
Cinderella Consolidated	80	3	18,040	21,520
Meyer and Charlton	75	2	13,811	12,823
New Goch	120	1	26,391	21,547
Roodpoort United	50	3	27,200	25,911
Van Ryn	135	6	38,660	30,931
West Rand Consolidated	100	1	26,000	31,058
	640	22	131,562	£157,718

Company.	Cost per Ton.	Total Revenue.	Profit.
Aurora West	19 3/5	£18,052	£1,130
Cinderella Consolidated	23 10/3	23,818	2,328
Meyer and Charlton	18 6/3	30,257	17,131
New Goch	16 3/9	26,293	1,715
Roodpoort United	19 0/6	28,721	2,807
Van Ryn	16 0/0	51,938	21,001
West Rand Consolidated	23 10/7	39,115	8,057

£221,221 £63,505

Rand Mines Group.

The following are the results of crushing operations of the Eckstein companies of the Rand Mines, Ltd., for September:

Company.	No. of Stamps.	Tube Mills.	Tons crushed.	Estimated Working Costs per Ton.	Total Fine Ozs.	Total Estimated Profit.
Modder B.	80	5	31,820	16 7	13,351	£29,113
New Modder	180	7	10,350	20 1	21,591	19,015
City Deep	150	9	37,000	25 11	17,017	23,116
Village Deep	180	7	17,200	20 0	17,737	26,998
Village Main Reef	220	6	12,860	16 10	19,956	17,197
Robinson	250	6	51,100	11 7	23,885	62,063
Bantjes	85	3	22,910	21 2	8,565	8,110

Totals & averages 1415 13 273,510 19 3 £22,105 £215,912

The declared estimated monthly profits for 1912 are: January, £221,326; February, £213,212; March, £373,426; April, £225,284; May, £243,781; June, £231,590; July, £229,719; August, £255,717; September, £215,912.

The lower profits of the Modder B. and Durban Roodpoort Deep are due to decrease in the grade and tonnage.

No ore was milled from the City Deep dump. The decrease in tonnage is temporary.

The following are the results of crushing operations of the subsidiary companies of the Rand Mines, Ltd., group for September:

Company.	No. of Stamps Running.	Tube Mills.	Tons crushed.	Estimated Working Costs per Ton.	Total Fine Ozs.	Total Estimated Profit.
Rose Deep	300	1	61,400	16 8	21,119	£31,838
Goldenhuis Deep	300	1	18,100	26 1	17,071	7,398
Nourse Mines	260	1	51,700	20 2	19,516	26,127
Ferreira Deep	225	1	53,110	21 2	25,018	18,587
Crown Mines	660	26	156,300	18 6	57,761	97,700
Durban Road, D	100	3	21,570	21 6	8,696	6,210

Totals & averages 1815 57 101,210 20 1 £19,187 £220,890

The declared estimated monthly profits for 1912 are: January, £206,122; February, £209,989; March, £267,731; April, £221,289; May, £238,281; June, £212,288; July, £211,295; August, £220,285; September, £220,890.

Goerz Group.

Results of operations of the crushing mines comprising the Goerz group for the month of September are:

COMPANY.	STAMPS.	TUBE S.	TONS.	VALUE.	PROFIT.
May Consolidated	100	—	15,020	£16,815	£5,578
Princess Estate	60	5	19,500	25,829	1,637
Lancaster West	100	3	19,500	19,676	—
Geduld	50	2	13,600	18,953	5,017
	310	10	67,620	£81,303	£12,232

The monthly profits for 1912 are: January, £11,860; February, £12,212; March, £11,231; April, £10,619; May, £11,255; June, £15,017; July, £13,185; August, £13,639; September, £12,232.

The Lancaster West made a net loss of £1,100 in 1912, due to smaller tonnage owing to shortage of coal and to bad conditions, now satisfactory, hence, improvement is expected.

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Barnato Group.

The following are the results of operations for September on the producing mines of the Barnato group:—

COMPANY.	STAMPS.	TONS.	REVENUE.	PROFIT.
Consolidated Langlaagte	110	19,508	£32,161	£10,595
Ginsberg	80	11,335	21,316	7,303
Glencairn Main Reef	160	20,829	16,927	3,111
New Primrose	160	24,700	36,218	19,126
New Rietfontein	120	15,700	19,597	3,536
New Unified	60	11,510	16,690	5,114
Quest G.M. and Dev. Co.	30	2,604	2,520	158
Witwatersrand	220	39,750	15,825	20,668

September totals ... 970 148,936 £191,317 £69,611

August totals ... 970 150,122 £192,679 £69,525

The monthly gross profits for 1912 are:—January, £59,227; February, £58,273; March, £61,223; April, £63,336; May, £66,133; June, £67,167; July, £68,311; August, £69,525; September, £69,611.

Neumann Group.

The following are particulars of the results achieved by the crushing companies in this group during last month, viz.:—

	TONS.	YIELD.	PROFIT.
Witwatersrand Deep	37,730	£56,685	£19,822
Wolluter	27,600	39,111	15,008
Consolidated Main Reef	21,498	31,767	10,787
Main Reef West	17,458	28,218	8,129
Knight Central	22,570	28,210	5,211

Total for group, £59,257

Main Reef West.—The decrease in the tonnage milled in September was due to the number of native labourers falling below the average of the past few months.

The Wolluter has 793 ozs. of gold in reserve.

Consolidated Gold Fields Group.

The following are particulars in regard to the outputs and profits for the month of September of the undermentioned companies of the Consolidated Gold Fields group:

Company.	No. of Stamps.	Tube Mills.	Tons Crushed.	Gold declared, Fine Ozs.	Total Profit.
Sumner and Jack	320	7	75,700	19,252	£43,319
Robinson Deep	180	8	47,100	17,622	31,100
Knights Deep	250	5	58,871	19,679	11,026
Sumner East	150	3	31,326	6,876	1,413
Sumner Deep	130	8	52,000	10,791	1,800
Jupiter	90	7	39,300	10,412	8,188
Sub Nigel	30	1	1,616	2,933	2,133
Totals	1150	39	311,916	77,665	£99,432

Loss.

Reserve Gold—Sumner and Jack, 1,155 ozs.; Robinson Deep, 2,362 ozs.; Jupiter, 1,250 ozs.; Sub Nigel, 900 ozs.—total, 5,967 ozs.

Robinson Deep.—In addition to the above, 1,587 ozs. of gold were obtained from the old mill plates, the proceeds of which, namely, £6,652, have been placed to the credit of the fund.

Knights Deep and Sumner East.—Profits were affected by disorganisation of reduction works owing to fire. Normal results are expected for October.

The "total profit" shown above includes sundry revenue, viz.: Sumner and Jack, £2,500; Robinson Deep, £307; Knights Deep, £307; Sumner East, £50; Sumner Deep, £517; Jupiter, £110; Sub Nigel, £370; total, £4,164.

Correspondence and Discussion.

Comments on Questions Arising in Technical Practice or Suggested by Articles in the Journal—Views, Suggestions and Experiences of Readers.

The Dust Problem.

To the Editor, *South African Mining Journal*.

Sir,—A few weeks back I had the privilege of addressing you on the dust evil; at the same time I tried to show how it could be eradicated. Since then the Commission has issued its first report, and I think bears me out to a great extent on the points I brought forward. Now, with your permission, sir, I would like to say a few words regarding the water service, because on the efficiency of that service mainly depends our effort of keeping down the dust. Now, as a matter of fact, the water services, as far as my observations have carried me, are good, bad and indifferent. The danger, however, lies in the constant interruptions to which that service is liable, such as the pipes getting blasted, cars running foul of the pipes and so breaking them, rocks falling through boxholes on to pipes, it being remembered that water pipes are of small diameter and easily broken. And here let me say that the practice of putting in pipes along a level of a less diameter than 1 in. is decidedly bad and uneconomical, more so where the water service has been tapped from the bottom of a pump column. There is always a considerable amount of silt and sediment present in the water in pump columns, therefore it will not be long before trouble will be experienced in choked pipes; besides, for sprays to be efficient, it is absolutely essential for water to be clean and free from sediment. The point, therefore,

to be considered is, when breakdowns occur, the easiest and quickest way to repair those pipes so as to give as little delay as possible. The writer has a considerable amount of experience in that particular branch of mining, and the method I always adopted was, to carry a stock and die and pipe cutter round with me; in addition, I also used to make the boy carry all the pipe fittings likely to be wanted, so when I got to the spot I had everything needed, there was no need to wait while you sent the boys round looking for fittings. Pipes as a rule vary in length, it is therefore difficult to find a pipe to replace a broken one in a long column, but with a pipe cutter, stock and die you can repair any small pipe column on the spot in a few minutes, say up to 2 in. diameter. I am aware that many managers do not like giving out special tools of that description on account of their cost. Personally, I have never seen a pipe man carrying the tools mentioned, and I do not blame the managers when you see how little care some men take of their tools, but I would suggest that special tools of that kind be signed for, and in the event of the man carrying the charge being lost, and if the tools are returned to the manager, they will last for any length of time. On the other hand, the manager should encourage his men to carry a few little pipes and put up where he could not get a stock and die, pipe fittings and tools. In regard to the size of the pipe, say 3 in., which is the usual size for pipes, 3 in. is a

got blasted or broken, I always used to have a 3in. hose handy, flanged on each end, which I used to put on till I could get another cut in the shop. That operation, again, was only say from 15 to 20 minutes, when the level would be in full swing again, and so much time is saved. Under those new regulations formulated by the Commission, and which are likely to come into force shortly, it is most essential that the air and water service receive special consideration, unless we wish to be greatly hampered in our work, which will mean loss to employer and employee.—Yours, etc.,

W. BERTHELSON.

The Future of the Rand.

To the Editor, *South African Mining Journal*.

Sir,—The publication a fortnight ago in the *S.A. Mining Journal* of the estimated life of some of the outcrop mines took many of its readers by surprise, and people began to wonder what would become of Johannesburg when these mines close down. It will be noticed that most of the mines to close down first are situated in the Central and near East Rand, and the the outcrops to the West and in the far East have still got a happy long life in front of them, e.g., the Randfontein Central, West Rand Consolidated, East Rand Proprietary Mines, New Kleinfontein, Brakpan, New Modderfontein, the latter being not outcrop mines in the strict sense of the word. The first feature, therefore, which is suggested by the presence of these fresh and promising mines on the far East and West Rand, and especially the former, where lately prospecting and boring have shown that there are "hidden treasures" underneath the coal measures, is the growth and possibly the formation of new towns on the distant extremities of the Witwatersrand. Around Johannesburg the outcrops have practically all a comparatively short future, and we shall soon have here no other mines but deep level mines. These will continue working out the reef until some depth will be reached at which conditions will make mining unpayable. These conditions will be: (1) The presence of dust in large quantities; (2) a high temperature; and (3) high cost of haulage, etc. The harmful effect of the presence of large quantities of dust in mines needs no explanation. In the outcrop mines, where there is a plentiful supply of water circulating all over the mine, the dust has little effect on the health of the workmen, and is mostly caught up by the water and prevented from entering the atmosphere. In the deep level mines, however, conditions are different. Below a certain depth (the underground water level) there is not a trace of water in the rock except that which may have found its way to

great depths through fissures and joints. Moreover, the temperature increases with increase of depth, and at a depth of 7,000 feet the temperature would probably be more than 50° C. higher than that at the surface, and a spray of water used while drilling would have little effect on the dust, which would be soon liberated into the atmosphere owing to the high temperature and to the low vapour pressure of the air below the underground water level. The white miner under such conditions will require a higher wage, because he will know that his state of health will not permit him to keep his job for a long time, and the native labourer will be also probably scared from going to work underground by the reports of his friends returning from the "land of inkusheaan" (cough). Another great influence of the bad conditions which would prevail in underground working places would be the lethargic state produced on the miners, who would not be in a hurry to settle down to work as quickly as possible, and we should thus have very inefficient work paid at a high wage. The cost of haulage is a fairly important item, but, in comparison to the above-mentioned obstacles, it seems that if a mine can overcome those difficulties, increase in the cost of haulage will not be enough cause for it to close down. It is rather strange that these problems have hitherto been little attended to, as they will undoubtedly determine the life and future of Johannesburg and the Rand. It is only practically within the last four or five years that people began to investigate how to improve underground conditions. Respirators have been invented and are being improved; the use of water for laying the dust has been made compulsory by legislation, but obviously in deep level mines this has not the desired effect owing to the evaporation of water and the release of the dust. The Corner House has, I believe, made some experiments on the use of a spray of a solution of molasses along with some disinfectant to prevent the breeding of germs by the former. Let us hope that these turn out a success. A suggestion was made about eighteen months ago in England that the laying of dust in coal mines could be best accomplished by means of soap and water. Could we perhaps extend its use to gold mines? The increase of temperature with depth and the accumulation of fumes in deep mines could best be coped with by forced ventilation. Mr. Penlerick, in a paper read by him at a meeting of the Chemical, Metallurgical and Mining Society of South Africa some two years ago, showed that the cost of installation of the new ventilation system on the East Rand Proprietary Mines has been more than recompensed by the increase in the profits owing to better work done under improved conditions. With proper ventilation and no dust or fumes in the atmosphere, a dry, deep level mine would make an ideal working place, and it is only by bringing about such conditions that the life of the mines can be prolonged.—Yours, etc.,

"A. H."

Piggs Peak.

The result of the operations at Piggs Peak for the month of September are as follows: 25 stamps ran 23 days, and 1 tube mill ran 18 days, crushing 2,105 tons, yielding 599.519 ounces; the cyanide works treated 2,657 tons, yielding 318.037 ounces; concentrates and slag shipped amounted to 3,619 tons, containing 90,226 ounces; total fine gold recovered, 1,007.812 ounces; estimated value, £1,280 18s. 6d.; working costs, £2,038 5s. 6d.; profit, £2,212 13s. Operations are hampered by the abnormal drought and shortage of water power.

New Company.

A new company, called the Consolidated Oil Fields of South Africa, was registered in London on September 11. Capital £100, in £1 shares. Objects as title. Registered without articles. Registered office, 80 Coleman Street, London, E.C.

Mooiplaats.

The Golden Hills Proprietary, Ltd., are mining on the farm Mooiplaats, S.W. Pretoria, and expect to have the mine sufficiently opened up for milling at an early date.

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Rhodesian Section.

LATEST MINING NEWS.

Position at the Golden Kopje—Chamber of Mines Report—The Kameel Mine—A Farvie Dispute—New Cyanide Plant for the Braganca Developments at the Globe and Phoenix—The Elsinore Claims—Rhodesian and S.A. Syndicate—Giant Mines: An Official Statement.

It is certain that next year will witness a very substantial increase in the production of gold in Mashonaland. We have on several occasions referred to the advanced state of development obtaining at both the Shamva and the Cam and Motor, and, in addition to these large propositions and the numerous small mines in the Hartley district which are on the eve of milling, there are the Eileen Mamah, near Gatooma, and the Golden Kopje, in the Lomagundi district, which will, in all probability, help to swell Rhodesia's output in 1913. The Golden Kopje mine, which is practically at a standstill awaiting the arrival of machinery, has now started building operations. Mr. Dean, the brick contractor, has made about 200,000 bricks, of which 70,000 are burnt and ready for use. He still has another 300,000 to make, bringing the total to half a million. The mine authorities have just bought up 2,000 bags of mealies from local farmers. The mine manager is signing on natives again.

The report of the Executive Committee of the Rhodesia Chamber of Mines (Incorporated) for the month of August states:—The following is a summary of the returns of native labourers employed on Southern Rhodesian mines at the end of the months of June and July, 1912:

	June.	July.
Local	15,574	11,711
Portuguese territory	6,435	6,913
North-Western Rhodesia	3,549	3,895
North-Eastern Rhodesia	5,399	5,004
Nyasaland	5,373	5,290
Other sources	1,065	1,051
	37,395	36,867

The number of natives employed in July shows a decrease of 5,615 when compared with the corresponding month of 1911. The distribution during the months of May and June was as follows:

	May.	June.
Producing gold mines	23,276	23,975
Non-producing gold mines	13,882	12,264
Coal and other mines	1,068	1,156
	38,226	37,395

The mortality from diseases amongst natives employed on mines for the first six months of the current year was at the rate of 19·81 per 1,000 per annum; that from accidents 5·35 per 1,000 per annum, making a total of 25·19 per 1,000 as compared with 31·87 in the corresponding period of 1911.

Development on the Kameel Mine (New Rhodesian Mines) has been somewhat retarded. Owing to scarcity of water the company has only been able to continue development on three faces. In May last the No. 3 winze from the 2nd to the 3rd level was cut off by a dyke, which was estimated by the company's engineer to be about 170 feet in thickness. The engineer advised the continuation of the winze, which advice and estimate were endorsed by Mr. Maufe, the Government Geologist. The dyke was passed through at the end of July, and proved to be 123 feet 9 ins.

in thickness. Crosscuts were then put in to locate the dyke, and the following cable has been received: "Kameel reef has been struck below dyke. Reef is 18 inches wide, assaying 1 oz. 18 dwts. per ton."

Sitting as an Arbitration Court at the Library Buildings, Bulawayo, Messrs. Ryl. H. Myburgh (chairman), Lewis Evans and A. Fraser have commenced the hearing of a case between Mr. H. S. Henderson, N.C., plaintiff, the owner of the Farvie Mine, and Rhodesia, Limited, who, until recently, tributed this property. Mr. Advocate W. Russell (instructed by Mr. J. C. Goghlan) is representing the plaintiff, and Mr. Advocate L. P. Ashburnham, with him Mr. Advocate R. J. Hudson (instructed by Messrs. Goghlan and Walsh) appear for the defendants. The case, which is being heard in private, concerns the state in which the tributors left the mine on the expiry of their tribute, and the sum of £12,000 is said to be involved.

Messrs. Mitchell & Little, of Salisbury, have been successful in securing an important contract to erect a large cyanide plant at the Braganca Mine, the property of the Andrada Gold Mines, Ltd., Mozambique Territory. The mine is, probably, the oldest mine in the territory, and was formerly the property of the old Mozambique Mines, Ltd. It is situated across the Roynet River, in the Chimuz Valley, some eight miles from the Pankaberg Mine. The new plant, when completed, will have a capacity to treat 2,500 tons monthly. In conjunction with the contract there is a concentration plant, consisting of blower, strakes, Willey tables and cyanide tanks.

The following are the official details of the development work on the Globe and Phoenix Mine for August. New main shaft, total depth 83 ft. Sinking resumed September 1st. 12th level drive north from main shaft, prospecting has advanced 83 ft. 12th level station reef south drive from main shaft, has advanced 61 ft., average width of reef 28 ins., average value over 30 ins., 9 dwts. 18th level drive south from No. 10 winze, east portion, hanging wall, has advanced 21 ft., average width of reef 8 ins., average value of 30 ins., 5 dwts. 18th level drive south from No. 11 winze, east portion, footwall, has advanced 10 ft., average width of reef 6 ins., average value over 30 ins., 1 lb. 18th level No. 3 winze, north, east part of this advance 23 ft., average width of reef 5 ins., average value over 30 ins., 3 dwts. 18th level No. 2 winze north, west part of this advance 22 ft., average width of reef 17 ins., average value over 30 ins., 35 dwts. 19th level drive north from No. 2 winze, east portion, has advanced 28 ft., average width of reef 17 ins., average value over 30 ins., 5 dwts. 19th level drive south from No. 2 winze, east portion, has advanced 18 ft., average width of reef 18 ins., average value over 30 ins., 1 dwts. 19th level drive south from No. 2 winze, east portion, has advanced 16 ft., average width of reef 16 ins., average value over 30 ins., 12 dwts. 19th level drive north from No. 3 winze, east portion, has advanced 18 ft., average width of reef 18 ins., average value over 30 ins., 7 dwts. 19th level No. 1 drive, south, from west reef, from east portion, has advanced 16 ft., average width of reef 16 ins., average value over 30 ins., 12 dwts. 19th level drive north from No. 1 shaft, west portion, has advanced 196 ft., average value 7 ins., average value over 30 ins., 7 dwts. 19th level No. 1

raise north, west reef, has advanced 21 ft., average width of reef 3 ins., average value over 30 ins., 3 dwts. Cross-cutting for month, 70 feet.

* * * *

From the Abercorn district the news comes that the Elsinore claims, about two miles from the Shamva, have been taken over by a syndicate of workers employed on the Shamva-Illex. The claims were originally pegged nearly 20 years ago, and, at one time, belonged to the United Excelsior Gold Mining Company, Ltd. The reef is a small quartz body with rich patches here and there.

* * * *

The report of the Rhodesian and South African Syndicate, covering the period from the date of the incorporation of the company to April 30th, states that the company began active operations in May, 1911, and has acquired about 180 gold mining claims. Cash in hand and with the bankers in London and South Africa amounts to £2,155. The receipts on share premium account amounted to £2,806, and it is proposed to write off £238 in respect of preliminary expenses and £800 from £1,200 paid on Tin Blocks option account. The syndicate, it is stated, may now take steps

to dispose of a portion of its mining interests to a public company which it is proposed to float at an early stage.

* * * *

The secretaries of the Giant Mines of Rhodesia have issued a circular stating that, in view of information contained in recent correspondence and a cable received late on August 30, which arrived badly mutilated, a special board meeting was held in mail week, when it was decided to publish the following: "On August 28, a cable was received stating that the acid dyke, which had always been associated with the reef in the upper levels, had been encountered, and that up to the time of despatching the cable, it had passed through 40 ft. of acid dyke matter." A further cable was received on Friday evening, as mentioned above, which states that ore-body type of rock was encountered after passing through the dyke. This the board regarded as very satisfactory, and the information of such importance that Dr. Corstorphine has been sent for, and has left Johannesburg to visit the mine. Mr. Gordon Dickson, your consulting engineer, who is at present in North-Eastern Rhodesia, has been communicated with and instructed to meet Dr. Corstorphine. They were expected to meet on the mine on or about September 7.

RHODESIA BROKEN HILL.

A New Financial Scheme—Further Tests to be Carried Out.

THE latest announcement of the directors of the Rhodesia Broken Hill, Ltd., marks another phase in the almost farcical exploitation of this Northern Rhodesian mine. Options were given over 250,000 five shilling shares at par, expiring on September 26. As the shares were quoted in the market at 3s. 6d., no inducement existed for shareholders to exercise these options, but the directors decided to make an inducement. They announced that any holder taking up at par a tenth of the shares over which he had an option would be granted an extension until December 31, 1913, of the option over the remaining nine-tenths. The inducement was not officially announced in such terms, but that is the true interpretation of the directors' circular. In other words it means that shareholders can obtain a call at par for 15 months at the price of about 2d. per share. After all the years this proposition has been floated, and after the reconstruction and all the optimistic forecasts regarding the ability of the property to produce large quantities of lead and zinc, it may well be asked what this new move fore-shadows. We understand that arrangements are being made to prove definitely the ore treatment process by making additional tests before proceeding to order any plant.

Shareholders, we imagine, must feel keen disappointment in the delay occasioned in bringing the proposition to the productive stage. Admittedly the Rhodesia Broken Hill board have had a very knotty problem to face, for the mixed zinc-lead ores are highly complex and the distance of the mine from the seaboard has, no doubt, further tended to postpone the solution of the metallurgical puzzle. The company was, it may be recalled, originally floated in 1901. The discovery of the richness and extent of the metallic contents dates from 1902, and thereafter for a period systematic development was carried out. The initial samples taken at one of the workings indicated about 21½ per cent. lead and 21½ per cent. zinc. There are seven large mineral-bearing kopjes, but up to date work has mainly been confined to the No. 1 and No. 2 hills. The parcels of ore at first sent to England were of simple composition, the principal mineral shipped being calcumine. The quantity of free calcumine existing in the mine was, however, soon discovered to be limited, and the shipment of trial parcels of mixed lead and zinc ore was then begun. After much disappointing experimental work it was announced that the Broken Hill ores were amenable to treatment by what is termed the Bradley-William process. Presumably, however, the separation of these mixed zinc and lead ores by

this method is not yet an unqualified success, and hence the delay in the fulfilment of a successful policy held out at the time of the reconstruction in 1910.

There can be no doubt as to the magnitude of the ore deposits, and there are at the present day considerably over half a million tons of ore developed in the property. However, the metallurgical outlook is still apparently indefinite. In many respects the position at Rhodesia Broken Hill corresponds very much with the position at the famous New South Wales group of Broken Hill companies a few years ago, previous to the discovery of a method of dealing with the sulphide ores. A very remarkable change has come about on the Barrier Range in New South Wales as a result of new metallurgical methods, and the success eventually met with in the Australian properties should encourage those responsible for the administration of the Rhodesian ventures to persevere in the search for an effective process.

TO CONTRIBUTORS.

The Editor invites Contributions on any subject of interest relating to mining and other industries of South and Central Africa, as also of suitable non-copyright photographs or snapshots of mining or engineering interest. Subject to special arrangement, the scale of remuneration for all articles inserted is at the rate of Two Guineas per page, and 5/- for every photograph. No responsibility can be accepted for sub-transmission, but anything that may be submitted that is not accepted will be returned if a stamped and directed envelope is enclosed for the purpose.

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GEOLOGICAL NOTES ON A TRAVERSE FROM GWELO TO BULAWAYO.*

By A. E. V. ZEALLEY, *Geologist to the Southern Rhodesia Geological Survey.*

The following notes are based upon a rapid traverse from Gwelo to Bulawayo along the Salisbury-Bulawayo road. Excepting that part which lies between Willoughby's Spur and Shangani, the road remains very close to the Salisbury-Bulawayo railway line, and frequently crosses and re-crosses it. The road takes a rather more direct south-west course than the railway, since the latter follows very closely the watershed between the Zambesi and Limpopo rivers, excepting in two places, where it crosses the Shangani and Unga rivers instead of making, in these two instances, wide detours to the south. The distance by road is approximately 103 miles, and by rail 113 miles. Of the 103 miles of road some 58 miles traverse granite, the remainder being metamorphic rocks (chiefly of igneous origin) and a very small distance (less than five miles) of sedimentary rocks (Somabula gravels and forest sandstone). The country traversed is largely bare rolling ground, treeless as a rule, or covered with thin bush. The schist country and the Somabula gravels are sometimes fairly well tree-clad; the former is fertile, and supports a number of farms given up to crop-raising. The stretches of granite country between Somabula and Lochard appear to form good ostrich country, since large numbers of wild ostrich are seen there. Each one of the schist "belts" traversed supports producing gold mines near the road. The Somabula gravels are washed for diamonds and other precious stones. The granite near Bembesi contains several masses and pipes of "blue ground," which, in some instances, are diamondiferous. From near Gwelo to the Shangani river the country traversed is almost entirely granite—the Somabula gravel is the only exception, some three to four miles of it being traversed by the road. From Shangani to a few miles beyond Insiza the road traverses schists, which are mainly of igneous origin, but rocks presumably of sedimentary origin occur around the Eclipse Mine. From near Insiza through Lochard to Bembesi, granite is again traversed; and after a few miles of schist, more granite is encountered and extends to just beyond Heany Junction. Onwards to Bulawayo, schists (chiefly of igneous origin, but containing some sedimentary rocks) occupy the ground, excepting for an extremely small distance near Thabas Induna, where disintegrated sandstone (forest sandstone) covers up the schists. The details of the rocks passed over are as follows:—

Gwelo (mile 1.473).—Near the old police camp epidiorites exist, and intrusive in them is a massive grey igneous rock, which probably ranges from granophyre to porphyry, and not unlikely represents an edge-modification of granite.

Gwelo Kopje.—Immediately south of the town the bold ridge called Gwelo Kopje is composed of banded ironstone. It trends about east and west.

Gwelo Commonage.—Rather less than two miles out of Gwelo on the Bulawayo road, massive pink and grey biotite granite weathers into prominent boulders. It is not foliated, is quite fresh, and the quartz is pink stained, the felspar being white.

1,468 Railway Mile Post.—Some five miles from Gwelo near the 1,468 railway mile post (from Capetown), a spruit exposes foliated granite. Massive non-foliated biotite granite, probably of later age, is in contact with and presumably intrusive into the foliated rock and weathers out in blocks; whereas the foliated granite generally is very crumbly, and contains small bodies of quartz and "quartz pegmatites," together with small elongated bodies of granulitized schistose biotite-felspar rock. These latter are probably xenoliths. The foliation of the gneissic granite is north and south. Non-foliated pegmatite veins intersect the gneiss and, I believe, cut across the foliation.

Mile 1,467. Near the 1,467 mile post a very thin scattering of pebbles, possibly Somabula, occurs in the granite. It contains dots and a few small forest sandstone (?) Forest Sandstone.

Mile 1,464. The granite here is covered up with fine sand and occasional pebbles near the 1,464 mile post.

Mile 1,462. Some two miles on gravel completely covers up the underlying rocks.

Willoughby's Spur. The Somabula Gravels are well developed near Willoughby's Spur, where a considerable amount of washing has been carried out in order to obtain precious stones. The gemstones found include the following: Diamond, ruby, sapphires, corundum, amethyst, chrysoberyl, aquamarine, blue and white topaz and garnet. Gold is also recovered from the wash in flattened and rounded grains. A little washing is still being carried on, but formerly it was much more active. The Somabula Gravels and Sands are alluded to by Mr. E. P. Mennell ("Geological Structure of Southern Rhodesia," *Q.J.G.S.*, Vol. LXVI, 1910, p. 370). By him the beds are stated to overlie the Forest Sandstone, to have a normal thickness of about 150 feet, and to consist of red and white sands at the top, underlain by gravels with a maximum thickness of 40 or 50 feet, and white micaceous sands, sometimes including clayey bands. The origin of the beds is considered by Mr. Mennell ("The Rhodesian Miners' Handbook," *Rhodesian Museum Special Report No. 1*, 1908, p. 120) to be fluvial rather than lacustrine. The thicknesses of the various rocks comprising the Somabula Gravels vary greatly from point to point. The beds appear to be lenticular, and lie on a very uneven floor of decomposed granite. In one place where a stream has cut down through the sediments the floor exposed is a gneissose biotite-granite. Underlying the gravels (which in part are compacted and cemented to conglomerate by terrigenous and other materials) are rather remarkable pure white and pale mauve (?) argillaceous sandstones of extremely fine grain, and containing scattered flakes of black and white mica. The rocks are indeed so compacted that shafts are often sunk with great difficulty, and drives and cross-cuts driven to take out the gem-bearing rock. In that part of the diggings examined a layer of rock some 18 inches thick is used for washing. The indicator of the gem gravels is a brownish-black stannite occurring in small waterworn elongated crystals and grains. The mineral is present in considerable quantity in certain portions of the gravel rich in heavy minerals. These portions, it seems, may be readily recognised by the eye by the presence of the abundant dark green or stained (?) The rock is got out during the dry season and placed in stacks to be washed during the ensuing rains. Stannite is the commonest mineral in the concentrate, then garnet, kyanite, tourmaline, topaz and chrysoberyl, the latter named, the diamond, ruby, etc., being rare. Quartz and biotite are the commonest pebbles, and the asphy pebbles, probably banded ironstone, are fairly abundant, but the washed tree trunks are occasionally found in the gravel. Pebbles of chromite and pyroxene are not uncommon, and only seen in the concentrate. About one or two large workings at Willoughby's Spur, gneissose biotite granite, with non-foliated pegmatite, is exposed under the covering of pebbles.

To be continued.

Kolmanstrop Diamonds

The following is a list of the diamonds found at Kolmanstrop, in the Northern Rhodesia, during the year 1911.

* Reprinted from the Report of the Director of the Geological Survey, 1911.

THE WEEK IN THE SHAREMARKET.

Hesitating—Awaiting War News—Puzzling Situation.

THERE is still a possibility of peace in the Near East, and the market is inclined to take a hopeful view. The whole list of stocks, of course, is weaker, and until something definite happens, no activity is to be expected. Paris has had a pretty nerve-racking week, and has sold everything, including many gilt-edged Rand stocks. It is a striking tribute to the soundness of the South African market that it should have borne the events of the week so well. Indeed, it is quite clear that the position is very healthy, and that any amelioration in general conditions, owing to better political news, would quickly react on prices.

	* Friday, 4th.	* Sat., 5th.	* Monday, 7th.	* Tuesday, 8th.	* Wed., 9th.	* Thurs. 10th.
African Farms	15 9	15 6B	...	15 9B	15 7	15 6
Adair-Usher Process	...	1 6B	...	0 9B	1 6B	...
Apex Mines	23 0B	29 0	...	29 0B	28 3B	27 6
Aurora West	10 0B	10 0B	...	10 0B	10 0B	...
Bantjes Consolidated	24 4B	23 9B	...	24 6	23 9	23 6B
Benonis	4 6B	4 3	...	4 3B	3 9B	4 1B
Bushveld Tins	0 9B	0 10B	...	0 10B	0 10B	0 10B
Brakpan Mines	80 0	79 0B	...	79 0B	77 6B	77 6B
Blaauwvlei	25 0B	26 0B	...	26 0B	26 0B	26 0B
British S.A.	...	...	...	...	25 6B	...
City and Suburban	46 3	46 0B	...	46 6	45 9	45 6B
City Deeps	61 0B	62 0	...	62 0B	60 0B	60 0
Cloverfield Mines	7 4	7 3	...	7 3B	7 0	6 8
Cons. Langlaagtes	27 6B	28 0	...	27 9B	27 6B	27 6
Cons. Main Reef	13 9B	18 9B	...	19 0B	18 5	18 6
Coronation Freeholds	...	...	...	0 6B	...	...
Cons. Investment	...	...	...	20 0B	...	...
Crown Mines	141 3B	140 0B	...	142 6B	141 3B	138 9B
Concrete Cons.	...	...	...	...	...	5 0B
Cons. Mine Selections	10 0B	10 0B	...	11 0B	...	...
Clydesdales	9 0B	9 6B	...	...	...	9 0B
East Rand Cent.	13 3	13 0B	...	13 3B	13 0	12 9
East Rand Coals	2 4	2 4	...	2 4B	2 4B	2 3B
East Rand Deeps	2 4B	2 5B	...	2 5	2 6B	2 6
East Rand Props.	56 0B	56 0B	...	57 6	56 6B	56 0
East Rand Deb.	£93	...	...	£93	£93	£94
Eastern Gold Mines	2 2B	...	...	2 0B	2 0B	2 0B
Frank Smith Diam.	10 0B	11 3B	...	10 3	10 0	9 3B
French Rands	...	...	...	2 0B	1 0B	...
Govt. Areas	24 0B	23 6B	...	23 9B	23 6	23 6
Glencarns	4 9B	3 9B	...	3 9B	3 9B	3 9B
Glencoe (Natal) Colls	6 9B	6 6B	...	7 0B	5 3B	6 9B
Geduld Props.	24 6B	24 0B	...	24 6B	24 6	23 6B
Hex Rivers	1 0B	1 0B	...	9 11B	1 3B	1 3B
Jupiters	11 3B	11 3B	...	12 6	12 0B	11 6B
Klerksdorp Props.	3 0B	2 9B	...	2 10B	2 1B	2 9B
Knight Centrals	13 6B	13 3B	...	13 6	13 0B	12 9
Loipardsvlei Estates	12 0B	...	...	12 3B	12 3B	9 0B
Lace Props.	3 9	3 10B	...	4 0	3 0B	3 6B
Lydenburg Gold Farms	2 6B	2 7B	...	2 6B	...	2 3B
Main Reef Wests	21 0B	21 0B	...	21 9	21 0	20 6B
Mobler B's	67 9B	66 6B	...	67 0B	66 4	65 0B
Middlebush Estates	...	...	...	1 4B	...	1 6B
Mobler Deeps	41 6	40 9	...	41 0	39 0B	39 0B
Meyer & Charltons	191 3B	191 0B	...	190 0B	...	...
New Eras	8 6B	8 0B	...	8 3B	8 0B	8 0B
New Kleinfonteins	27 6B	27 0B	...	27 0B	27 0B	27 0B
New Rietfonteins	7 6B	...	...	8 0B	8 0B	8 3B
New Boksburgs	...	...	...	...	1 6B	...
Nigels	18 6B	18 6B	...	18 0B	18 3B	18 6B
New Geduld Deeps	2 6B	2 6B	...	2 5B	2 3B	2 4B
Nourse Mines	...	...	...	38 0B	38 0B	38 0B
Orange Diamonds	1 6B	1 6B	...	1 6B	1 6B	1 6
Premiera Deferred	219 6B	...	...	212 6B	210 9B	237 6B
Pigg's Peak	...	...	...	17 0B	...	...
Protector Cement Co.	51 6B	55 4	...	55 6B	55 6B	56 0B
Paardekraal Estates	...	...	...	1 0B	1 0B	0 6B
Prime	10 0B	10 0B	...	10 3B	9 9B	10 6B

* Buyers.

B Sellers.

	Friday, 4th.	Sat., 5th.	Monday, 7th.	Tuesday, 8th.	Wed., 9th.	Thurs. 10th.
Premiers Preferred	...	...	...	175 0B	175 0B	...
Rand Nucleus	2 9B	2 6B	...	2 10B	2 6B	...
Randfontein Estates	30 6B	30 6B	...	31 0	29 0B	...
Randfontein Deeps	5 6B	...	...	5 6B	5 4B	...
Rooiberg Minerals	31 0B	30 9B	...	31 0B	31 3	31 0B
Rand Klips	4 10	4 9B	...	4 7F	4 3	...
Roberts Victor	32 6B	36 6B	...	37 0B	...	...
Rand Collieries	...	...	...	9 0B	...	...
South African Lands	4 3	4 1B	...	4 3	4 1B	4 1B
S. Randfontein Deeps	4 6B	...	...	...	...	...
Sub Nigels	8 0B	...	...	8 6B	7 9B	8 6B
Spring Mines	16 6B	...	...	17 0B	16 6B	16 0B
S. A. Breweries	39 0B	...	...	...	...	39 0B
Shebas	5 3B	...	...	5 3B	...	5 6B
Trans. G.M. Estates	51 0B	50 0B	...	51 0B	51 0	50 0B
Trans. Coal Trusts	48 6B	48 0B	...	48 6B	47 0B	46 0B
Tulors	1 6B	...	...	1 6B	1 6B	2 0B
Van Ryn Deeps	18 9B	18 9	...	19 0	18 6B	18 0B
Village Deeps	40 6B	...	...	43 0	42 0	41 0B
Vogel, Cons. Deeps	1 0B	1 0B	...	1 0B	1 1B	1 0B
Village Main Reef	49 0B	49 0B	...	49 0B	49 0B	...
Vitwatersrands	59 0B	60 0B	...	58 6B	60 0B	59 0B
Wollmers	20 3	20 0B	...	20 3B	20 0B	20 0B
Wit. Deeps	...	...	...	52 0B	51 3B	50 6B
West Rand Est.	...	...	...	...	...	3 3B
West Rand Com.	16 0B	16 3B	...	16 0B	...	...
Zaaiplaats	26 6B	27 0B	...	27 0	24 9B	26 6

B Buyers.

B Sellers.

Vryheid (Natal) Coal.

The report of the Vryheid (Natal) Railway Coal and Iron Company, Ltd., to be submitted to the meeting on the 18th instant, covers the year ended 31st January, 1912, and states that, after allowing for depreciation and providing for interest on debenture issue and loan, the result of the year's trading is a profit of £1,368, which, deducted from the debit balance of £6,200 brought forward, leaves a sum of £4,800 to be dealt with hereafter. The railway continues to work well, passengers and general traffic showing a steady increase. The output from the mine for the year was 228,106 tons, as against 119,730 tons for 1910-11. The quality of the coal has undoubtedly improved, and it is being supplied regularly to the South African Railways, liners, etc.

INVESTORS' DIARY.

The following company meetings have been announced:—

- Oct. 18.—Glynn's Lydenburg.
- Oct. 19.—Wolhuter G.M.
- Oct. 23.—Johannesburg Consolidated Investment Co.
- Oct. 29.—Jumpers G.M.Co.; Zaaipplaats Tin Mining Co.
- Oct. 30.—Rooiberg Minerals; Nourse Mines; Western Rand Estates.
- Nov. 6.—New Modderfontein.
- Nov. 22.—Main Reef West; Consolidated Main Reef.
- Nov. 27.—New Boksburg G.M.; Rand Klip.

Situations Wanted.

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Engineering Notes and News.

ACCIDENTS IN SOUTH AFRICAN MINES.

In his annual report for last year the Government Mining Engineer says: There were 589 accidents in connection with trucks and tramways (mines) reported as having occurred on mines within the Union, equal to 20 per cent. of all accidents. Sixty-four deaths, or 6 per cent., of the total number of deaths resulted therefrom, whilst the percentage of casualties to the total number of casualties was 18 per cent. A large proportion of these accidents is not very serious, injuries to hands and feet accounting for most of them. The victim is usually not incapacitated from his ordinary work for any length of time beyond the fortnight specified by law as constituting a serious personal injury. Distributing the 589 accidents according to Provinces—Transvaal accounts for 387 or 16 per cent. of Transvaal accidents; Cape accounts for 135 or 16 per cent. of Cape accidents; Orange Free State accounts for 39 or 29 per cent. of O.F.S. accidents; Natal accounts for 28 or 25 per cent. of Natal accidents. Forty-three per cent. of trucks and tramways accidents happened on diamond mines, where extensive haulage and tramming systems make this class of accident the leading cause, accounting for 41 per cent. of all accidents on these mines. Carelessness, ignorance and disobedience to orders play a prominent part in these occurrences, and available records show that some 22 per cent. are due to these three causes. This percentage may, however, be considered conservative, as the trivial nature of many accidents does not call for an investigation, and it is probable, therefore, that accidents due to lack of care have in such instances or, in any case, in several of them been classified under "danger inherent to work." There were 231 separate accidents in which machinery of various kinds was concerned, and 234 casualties resulted. These casualties include 5 whites and 11 coloured persons killed and 71 whites and 114 coloured persons injured. Carelessness was the general cause, either on the part of the injured person or that of fellow-workers. Working with machine tools or in stamp batteries was responsible for most of the injuries to white persons, while the coloured persons met with their accidents by contact with moving machinery, wire-rope haulages, or driving or conveyor belts.

*Accidents in Connection with Boilers and Steam Pipes (Mines).—*Under this heading there are eight accidents to be recorded. These resulted in nine casualties, four coloured persons being killed and one white and four coloured persons injured. There were two separate cases of the bursting of tubes in water-tube boilers, and in each case a

native was killed. In one instance the material of the tube was defective, and in the other case overheating had occurred. One native was killed and one injured through burns received from burning soot while engaged in cleaning flues of boilers. Proper supervision of the natives engaged in these cleaning operations would have prevented these accidents, and the management was in each case directed to provide this in future. One native was killed and two injured through scalds received while engaged in cleaning work inside boilers. The blow-off valves were found to be defective, and as these boilers were connected up to other boilers by common blow-off pipes there was leakage of steam and boiling water into the open boilers when steaming boilers were blown down. The new Mines and Works Regulations endeavour to provide against this class of accident, and also against the danger of guarded blow-off pipe discharges, one of which was responsible for a native being severely scalded. The injury to the European occurred at the time of re-making a joint on a steam pipe from which the hot water had not been properly drained.

*Accidents in Connection with Electrical Plant (Mines).—*This class of accident has not shown any appreciable increase, although the use of electrical power has considerably

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STOCKS IN JOHANNESBURG AND DURBAN.

... seven separate accidents, resulting in a group total with the respective totals ... for the twelve months ended 30th June, 1910, and fifteen and thirteen for the twelve months preceding that year. Four of the accidents occurred in connection with lighting wires, carrying alternating current, at voltages varying from 120 to 240, one with lighting current at 220 volts direct; in another case the current was 500 volts direct, while in the eight other cases the current was high pressure alternating. Deaths occurred with voltages as low as 120 and as high as 2,000 volts, alternating current. Adopting the classification used in the reports of the Home Office of Great Britain, the following table results:—

Accidents.

1. Faults as regards the earthing of outer coverings of apparatus, switchboard frames, etc. ...	—
2. Contact, direct or indirect, with live parts of cables:	
(a) Direct contact with a live cable exposed through abrasion of the insulation ...	3
(b) Contact with a conductor (e.g. a signal wire) made live by its contact with a live cable exposed through abrasion of the insulation ...	3
3. Accidental contact with uninsulated live parts of apparatus:	
(a) With live parts normally exposed ...	5
(b) With live parts normally unexposed, but improperly exposed when live for adjustment ...	—
4. Misadventure ...	3
Totals ...	14*

*One in a diamond mine in the Free State; the remainder in mines in the Transvaal.

Overwinds.—During the year there occurred eighty cases of overwinding or runaway of the conveyance (cage, skip, or kibble) in shafts or winzes. In twenty-five instances death or serious injury was caused to persons, the extent of which may be seen by the statistics. The increase in this class of accident, though not great, is much to be regretted. It cannot be accounted for by any very appreciable increase in the number of winding plants. Concerning the fifteen accidents that occurred while persons were travelling, in six instances no personal injury resulted, but in the other nine cases, only three of which were due to defective plant, three white persons and fifteen coloured were killed and two white and thirteen coloured persons were injured. The most serious of these accidents consisted of the overwinding of a skip containing persons, owing to the driver being unable to close the throttle valve of the engine and his not having presence of mind to immediately use the reversing lever to control the engine. The conveyance was wrecked and two whites and six coloured persons were killed. On examination of the throttle valve after the accident, it was found that a stud had come loose and rolled on to the seating, where it was jammed by the valve when the driver attempted to close the same. This cast-iron throttle valve was of the single-jointed type, fitted with a balance piston and pilot valve. The plate fitted over the pilot valve was held in position by two half-inch studs, one of which had been tapped into a very spongy piece of metal, which broke away and allowed the stud to fall out of position and find its way between the main valve and its seating. In the process of manufacture the defect just described must have been quite apparent, and the failure to scrap the spongy casting led to this large loss of life. Of the 80 overwinds or runaways, 61 occurred with winding engines licensed for the transport of persons; 75 occurred with engines in charge of certificated drivers; 1 with a white uncertificated driver, and 4 with coloured persons in charge. In 44 cases the certificated engine-driver was considered to be at fault, 23 certificates were suspended for periods varying from fourteen days to six months, and 21 official cautions were administered. In 22 cases the accident was judged to be due to defective plant. In the remaining 14 cases no

action was taken, these occurrences being trivial. Death by hanging hooks were very successful and no instance of failure to act has to be recorded. However, in one case the impact was so great that the occupants of the cage were all injured, two fatally. During the year there were six appeals to the Government Mining Engineer against sentences of suspension imposed by inspectors of mines, and in three cases these resulted in reduction of the periods of suspension.

Fatal Accidents due to Ropes, Chains, or Couplings Breaking (Mines).—There were no fatal accidents due to ropes, chains or couplings breaking while persons were being raised or lowered apart from those cases under the heading of "overwinds," and in which overwinding was the actual cause of the rope fracture. In the cases grouped in the above table the breakages led to cages, skips and buckets or trucks running away and to the conveyance or its contents striking persons. In one case it was the coupling that broke, in another case the bridle of the up-coming skip caught under a fishplate, while in the other instances some local damage to the rope was the cause of its breaking. Of the 23 cases, 15 were caused by overwinding or runaway and eight by derailment or by jam or collision in shaft. Persons were being raised or lowered in only one case, the casualties in the other instances being caused by the runaway of conveyance or the wreckage it created striking persons. The case mentioned is that of the overwind caused by the defective throttle valve described above. In addition to these cases of fracture, four winding ropes were seriously damaged owing to runaway, derailment or jam in shaft. There were also fourteen breakages of ropes used exclusively for minerals, and these were generally caused by jam in shaft or free fall of conveyance after sticking during the process of lowering.

Accidents Connected with Winding Plant, but Causing no Injuries to Persons (Mines).—Eighty-six accidents of this character were reported during the year, which, with the exception of four for the Orange Free State, all occurred in the Transvaal. These accidents have to be reported in terms of Regulation 274 of the Mines and Works Regulations (old Transvaal Regulation 130). The new regulations became effective only from 1st December, 1911, and the following compilation is therefore complete for the year only in so far as the Transvaal Province is concerned. Of the 86 accidents—55 related to overwinding or runaway, the rope fracturing in sixteen cases and drawing out of capping in one case; 17 related to derailment or jam in shafts, the rope breaking in nine cases and otherwise damaged in three cases; 1 related to fracture of ropes not due to any of the above causes; 1 related to breaking of skip bridle; 4 related to fractures or cracks in flanges, cheeks or shaft of winding drums; 4 related to fractures or cracks in spur gear of drums; 1 related to fracture of piston of winding engine; 1 related to breaking of brake band; 1 related to fracture of clutch lever; 1 related to collision.

A "Mine Rescue Engineer."

In its Minnesota iron mines the Steel Corporation has appointed a "mine rescue engineer," and has thereby followed the example set by the Cleveland Cliffs Iron Company. According to the *Engineering Mining Journal* of New York, the business of this engineer will be to look after safety appliances at the mines, to determine where such are needed, and to instruct miners in the use of rescue apparatus in the case of accident. His chief work will be rather to prevent accidents as far as possible than to mitigate their consequences.

Mr. Val von Koschowsky, late mine manager at Voorspoed, has been appointed manager of the Britsdale Diamond Syndicate, Ltd.

* * * *

Mr. Charles Glyn, manager of the City and Suburban G.M. Company, arrived in Capetown from England by the Kildonan Castle this week.

Finance, Commerce, and Industries.

Sir Llewellyn Smith, in an introduction to the report of the British Comptroller of Revenue, remarks that considerable progress has been made in the direction of uniformity of company law throughout the Empire since his last report, in which it was stated that in the Transvaal, Victoria and British Columbia Acts had been passed following very closely the British Companies Consolidation Act of 1908. Since then Ordinances on the same lines have been passed by the Legislatures in Barbadoes and Hongkong, and an Ordinance has been proclaimed in Swaziland. Bills have also been introduced in India, Nova Scotia and Southern Nigeria. At the inter-State Conference held at Melbourne last January a resolution was passed that it was desirable that the Companies Law of the different States should be brought as nearly as possible in accord with the Companies Law of England. During the year ended 31st March last the total receipts on account of companies winding-up proceedings amounted to £56,098, a surplus over the expenditure of £28,213, due mainly to the fees charged in the cases of the Bank of Egypt and the Birkbeck Permanent Benefit Building Society. In the latter case it is pointed out that there were over 80,000 members, depositors and current account holders, and over £5,000,000 has already been distributed.

* * * *

The operations of the Glasgow and South African Company for the year ended 30th June last, according to the report, recently circulated, resulted in a net revenue of £900, as against £2,000 for the preceding period. The decline is due to the smaller profit made on the sale of farms, though transactions have taken place the proceeds of which will come in during the current year. The total credit balance at profit and loss is £1,800, and the directors do not recommend any distribution, whereas twelve months ago 5 per cent. was declared. The company has investments standing in the balance sheet at £22,000, but this is at cost, and since their acquisition considerable depreciation has taken place. It is now proposed to realise these holdings and to devote the proceeds to returning to shareholders one-half of their capital. This will require £15,000, and in order to carry out the proposal the proprietors will be asked to agree to a resolution formally reducing the capital from £30,000 to £15,000. Apart from investments, the assets now remaining are only valued at £8,600, but there is also cash in hand amounting to £4,300.

* * * *

The British Consul at Katanga reports on the trade of this territory as follows: "The township of **Trade of Katanga:** Elisabethville covers an area of about **Consular Report.** 560 acres, and possesses some twenty miles of streets and a population, according to the census of the 1st of January, 1912, of 1,132, of whom 519 are Belgians, 228 British, and 385 of other nationalities. At one time the population must have exceeded 1,500, but the rainy season and the crisis drove many away. The total white population of the Katanga district is between 1,800 and 2,000, as against 717 on the 1st of January. A complete table of the imports and exports for the year 1911 has not been prepared as yet, but the imports for the first six months amount to £152,743, calculated to the nearest pound at the rate of 25 fr. to the £1. The total for the second half of the year will no doubt show a considerable increase, particularly in material for construction, provisions, liquors, etc. The British Empire, which headed the list of exporting countries in 1910, now takes second place, and South African and Rhodesian merchants would do well to study the Katanga as a promising market for their goods instead of being discouraged at the losses which they have incurred and avoiding all business

therewith. They are merely going from one extreme to another, and they would be better advised to turn their serious attention to a country which is so favourably situated for them. They should appoint agents either in Elisabethville itself or in Bulawayo, or Livingstone, whence they could pay periodical visits to the Katanga, and by this means keep in touch with the situation. At present there is no solid basis for trade in the absence of any successful industry, and business and credit will fluctuate as in other new mining towns, but when the copper mining and smelting industries are firmly established, conditions should improve considerably, and those will gain the advantage who have already studied the country and its possible requirements. Meanwhile those who have given unlimited credit to men of whom they knew nothing either personally or financially should not blame the country for their losses."

* * * *

It is interesting to note the progress that the Union Iron and Steel Works have made. The work of erection was started in November, 1911. The plant is capable of producing 25 tons per shift of iron and steel bars, rails, etc., and it is stated that both in quality and in price they can compete with similar imported goods. The raw material is scrap wrought iron and steel, which was previously shipped to Europe. At present the works give employment to 30 white men and about 30 natives. The white employees are, owing to the specialised nature of the work and the newness of the industry, largely recruited from overseas, and it is gratifying to hear that some of these new colonists are so well satisfied with the local conditions that they have sent home for their wives and families and are settling in the township. Owing to the increased demand for the company's products, the existing works are being extended and more skilled workmen are being engaged. It is the intention of the company to shortly put down a plant for the manufacture of steel castings, for which no plant at present exists in South Africa.

Notices of the Situation of Registered Office.

- 3582. Central Meat Market, Ltd., stand 235, Auckland Cedar Avenue, Auckland Park, Johannesburg.
- 3749. Cartwright and Eaton, Ltd., 20, London House, Loveday Street, Johannesburg.
- 1693. Western Rand Estates, Ltd., the Company's Mine, Gembokfontein, Potchefstroom.
- 1995. Marks, Ltd., 15, President Street West, Johannesburg.
- 3797. Trevena Bakery Co., Ltd., 65, Pretorius Street, Pretoria.
- 1069. Goldfields Wine and Spirit Co., Ltd., 17, Bloem Street, Boksburg.
- 2417. Kayser Frenkel and Co., Ltd., 11, Loewenstein Buildings, Johannesburg.
- 3572. Walker Rogers, Ltd., 27-31, Muscley Buildings, corner Rissik and President Streets, Johannesburg.
- 1753. Colonial Land and Investment Co., 81, De Korte Street, Braamfontein.
- 3827. Good Hope Tin Syndicate, Ltd., Flat 307, Potgieters Street.
- 3617. The Standard Importing Co., Ltd., 30, Gaborie Buildings, Johannesburg.
- 2670. E. Friedlander and Co., Ltd., 120, Third Floor Cullinan Buildings, Johannesburg.
- 2222. New Randfontein Reefs Ltd., 120, Third Floor Cullinan Buildings, Johannesburg.
- 2556. Voorspoed Diamond Mining Co., Ltd., 120, Third Floor Cullinan Buildings, Johannesburg.
- 2811. New West Bonanza Gold Mining Co., Ltd., 120, Third Floor Cullinan Buildings, Johannesburg.
- 2920. Zeemist Lead Proprietary Mines Ltd., 120, Third Floor Cullinan Buildings, Johannesburg.
- 3731. New Shires, Ltd., 120, Third Floor Cullinan Buildings, Johannesburg.
- 2957. The Premier Coal, Ltd., 20, Royal Chambers, Somerset Street, Johannesburg.
- 1819. The Mineral Farms Syndicate, Ltd., 10, Breyer Buildings, Loveday Street, Johannesburg.

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Automobile Notes.

Motor Busses and Railless Cars.

The recently-published report on the relative merits of motor omnibusses and railless trams, as submitted by Professor Dobson to the Johannesburg Municipality, in connection with tramway extension, it would appear, favours the adoption of the motor bus. Available statistics, of a meagre nature, however, of working costs per mile in other parts show the motor bus services considerably higher in comparison with the railless car, where road systems are infinitely better than is the case in South African towns. The motor bus is by no means new to this country, many satisfactory services, adopting this form of locomotion, being established by private enterprise in places at present outside railway influence, and it may be mentioned that the Railway Administration has in contemplation other services of this nature to work in conjunction with its system. Railless cars, on the other hand, are practically an unknown quantity in South Africa, but due respect must be accorded the excellent facilities they embody and the success attending their introduction to many European cities. Doubtless their operation will be watched with particular interest in the Reef towns, to which this system appeals, and when in course of time this means of passenger transport has been recognised at its true worth, the motor system, as opposed to it, will probably receive a severe check. Assuming that motor omnibus services will be established in these parts,

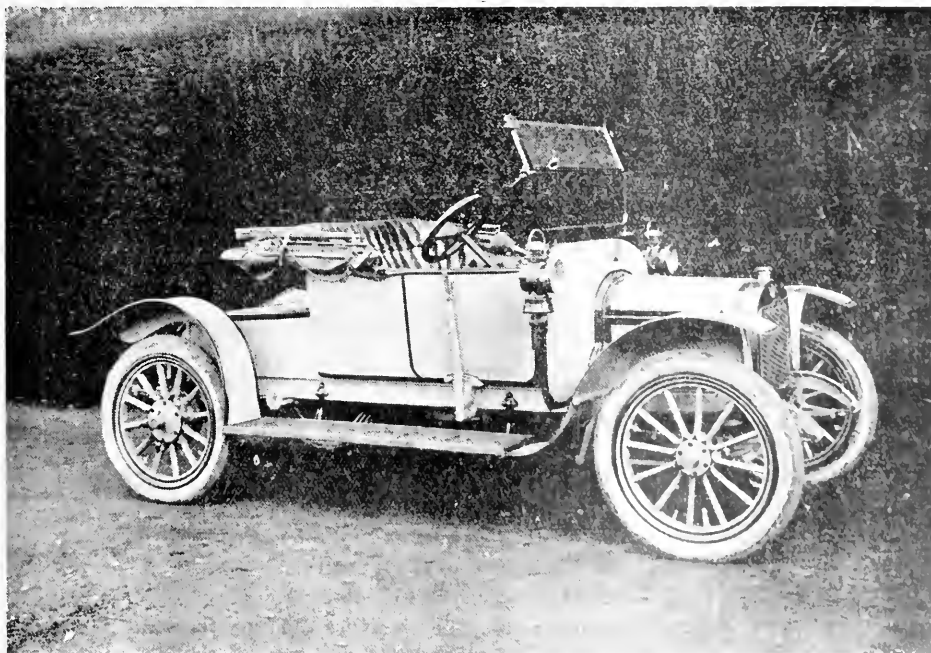
attention should be given to the fact that the frequency of hills encountered renders it imperative that all busses are fitted with two powerful independent brakes. As experience has proved, in parts where gradients are steep by comparison with here, that on motor busses with two brakes, should one fail on a steep hill, the other saves that the incidental strain proves superior to the other one, making quite clear the need for a two-way braking machine of this nature.

T.A.C. Doings.

With the motor gymkhana next month, which, by the way, promises much out of the ordinary in point of attraction, the Transvaal Automobile Club will bring to a termination their 1912 season. The several events were arranged in such a manner as to again creditably reflect on the club organisation. It is to be regretted, however, that, taking the events on the whole, they should be characterised by such a marked indifference on the part of the T.A.C. membership in extending support to the efforts of the club, which certainly provided an excellent programme of events. At the present time almost three hundred motorists are identified with the club, and the fact that one race had

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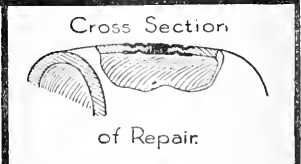
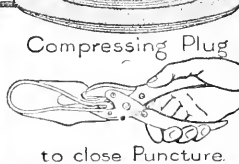
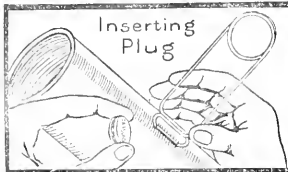
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Complete kit consists of piercing tool, stretcher, closing pliers, and 12 plugs, weighs 1 lb., measures 7 in. x 4 in. (fits the pocket)

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to be abandoned owing to the paucity of entries is truly deplorable. While recognising the difficulty of offering an explanation for this apathy, one inclines to the opinion, shared by so many, that the absence of a racing track influences largely the number of entrants for the various competitions. Be that as it may, it is only reasonable to suppose that were a track constructed, on the lines so often suggested, the facilities so afforded would induce many motorists, who now hold aloof, to enter for competition, and who argue that the wear and tear to which machines are subjected when racing at high speed over unprepared surfaces, amply justify the position which so many adopt at the present time in regard to local racing conditions. The additional attraction which will centre in this year's club gymkhana will be the inclusion in the programme of a display by the Royal Dragons, while it is expected that the proposed exhibition of Swedish drill by some 500 girls will be an innovation fittingly appreciated. The introduction of these features once again serves to emphasise the desire of the club to enlist the interest of its members, and it is hoped that their efforts in this wise will be successful. The date of the prize distribution is under consideration and will be announced at a later date.

Trapping Crusade.

A revival of the trapping methods is unfortunate, and it would appear that, apart from revenue considerations in the fines inflicted, no genuine purpose is served by the system, as the actual offender, the "motor hog," is rarely if even brought to account. The recent outbreak of official zeal in this direction bears out this view, a glance at the names showing that the majority of those convicted for exceeding the speed limit are capable motorists of wide experience, from whom the public have little to fear, so to speak. The more moderate views, which the legislation, about to be introduced, will embody, it is hoped, will, among other features, so determine the speed of all motor cars that this practice, to which so decided an objection exists, will not only be unnecessary, but the power to enact it be removed.

"Here and There."

A copy of a recent issue of the "Austin Advocate" has been forwarded to us by the local agent, Mr. Harold Gill,

for the type of car with which the "Austin" for the "Austin" needs no introduction to the South African public, its adaptability to the peculiar conditions of the country being widely recognised by the motorist community. Mr. Gill, in a brief review of motoring in the Transvaal, which forms an interesting and instructive feature of the brochure, impresses one with the contrast which he has always manifested in the construction of the road system of the country, on which, subject to the gentleman speaks with some measure of authority.

* * * * *

As a widely travelled motorist, Mr. Gill's views on the motor as a developing factor in South Africa are entitled to more than passing consideration, and it is therefore gratifying to learn the opinions of this enthusiast on the progressive trend of the dwellers in the distant parts of the country, who in the past looked askance at the car, even those in remote isolation who cling to primitive methods of locomotion for so long, are recognising in the automobile facilities for progress unattainable under past conditions.

* * * * *

Numbers of South African motorists, strangely enough, are of opinion that the side lamps are quite effectual for general lighting purposes, and lose sight altogether of their original intention, which is simply to indicate to approaching traffic the width of the vehicle, and not to distinguish other road users. Were more strict attention paid to the lighting of head-lamps, a decrease in the number of accidents, which may be attributed to a disregard of this provision, would be apparent.

* * * * *

The surface of many district roads, traversed during recent holidays, including the Johannesburg-Pretoria road, calls for immediate renovation, particularly in view of the approaching rainy season. By a system of tar veneering much of the surface wear now entailed would certainly be avoided, and while, naturally, an obviously impossible course in regard to the entire district system of roadways, such treatment on the popular stretch leading to the capital would amply justify the undertaking. When one considers the enormous sums deemed advisable, and actually expended, on construction of roads, the disregard in which they are permitted to remain is regrettable.

* * * * *

The question of reflex lights, however, seems of much importance to the motorist, and merits the special attention from the various South African Cyclist Clubs.

SAVE MONEY!!

For Low and High Powered Cars,
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For Town Work or for Touring.

CONTINENTAL TYRES

ALWAYS PROVE THE SOUNDEST INVESTMENT.

The Continental Tyre & Rubber Co. (S.A.) Winchester House, Loveday Street, Johannesburg.

In Johannesburg, by way of illustration, where considerably more than 20,000 cycles are in daily use, the necessity for some device to indicate the presence of a bicycle at night to motorists travelling in rear is very obvious.

* * * *

The trade in the British cycle car has already reached considerable proportions, the machine being popularly known as the "tweenie," as belonging to a class between the car and the cycle. At present, from a practical standpoint, the machine has not established a great reputation, and is not yet regarded seriously in many quarters, owing to an impression that aiming at lightness some sacrifices have been made in regard to strength. The machine will naturally undergo marked improvement, and in time will doubtless conform to the most exacting road and other conditions

* * * *

The suggestion made some time ago by Mr. Massac Buist, when dealing with the alarming increase in the cost of petrol, to develop the paraffin market, was certainly a wise one, and calculated to interest motorists everywhere, and more especially the South African motorist, who is called upon to pay in exorbitant fashion for motor spirit. Mr. Buist was of opinion that the Society of Manufacturers and Traders, and the R.A.C., should vote a substantial sum for experimental purposes and trials, and if this were done some apparatus would probably result, whereby the use of heavy grade fuels could be efficiently made possible.

* * * *

Motor papers to hand by the mail contain some new world's motor records by the 12-16 n.p. Sunbeam, which space will not, however, permit of enumeration. Some of the new records, it may be mentioned, were set up as recently as 30th August, and it is certainly creditable that the Sunbeam should leave them behind in less than three weeks. It will also interest the increasing number of users of "Castrol" to learn that the Sunbeam cars are lubricated almost exclusively with this redoubtable oil, which is so rapidly coming into use among South African motorists.

Ceylon Lydenburg.

The following is the output of the Ceylon Lydenburg for September: Tons crushed, 741, yielding 573 fine ozs., valued at £2,350; estimated profit for the month, £1,707.

Glynn's Lydenburg.

The following is the output of Glynn's Lydenburg for September: Tons crushed, 3,551, yielding 2,030 fine ozs., valued at £8,397; estimated profit for the month, £1,718.

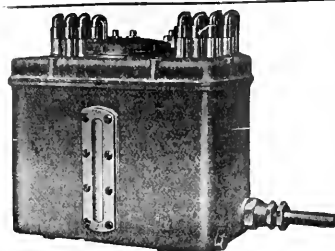
Sheba and Rosetta.

The following is the Sheba output for September: Mill ran 28 days, crushing 5,860 tons, yielding 3,192 ozs.; estimated profit, £5,223. Rosetta: Mill ran 11 days, crushing 870 tons, yielding 339 ozs.

Northern Transvaal Copper Fields.

Growing interest is being taken in the fact that the farm Borkenode (1,124, 1,125 and 1,126), eight miles from the Limpopo, held on lease by the Messina (Transvaal) Development Company, Limited, has been proclaimed a base metal diggings area from October 15 next. Three areas, each of 277 morgen, have been reserved by the Messina Company, by whom successful results have already been obtained from small defined parallel localisations, rich copper ore having been secured on a surface of workings.

Mr. E. Wallis, of S. Nourse & Co., was among this week's arrivals in Capetown from England.



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Mechanical
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Labour Position.

The following labour figures for September are compiled and furnished by the Chamber of Mines:—Number of natives employed at the end of last month by members of the W.N.L.A. and contractors: On gold mines, 180,739; on coal mines, 8,783; on diamond mines, 15,752; total, 205,274.

Another industrial concern is about to open up at Benoni. A lease of land with an option to purchase has been arranged with Dr. Harris for the purpose of establishing a factory for the manufacture of mine fuse and fuse lighters.

Contracts Open.

The following S.A.R. tenders are still open:—Tender No. 420.—100-ton Non-Propelling Floating Derricking Crane for Table Bay Harbour (15th Oct., 1912). Tender No. 439.—Structural Steel-work for Coaling Plant at Volksrust, Transvaal (5th Nov., 1912). Tender No. 432.—Coloured Cotton Waste (26th Nov., 1912).

Foreign Companies Registered.

- 1011. The Ubundi Gold Mining Co., Ltd., care of Stewart Edington, Barberton; capital, £110,000.
- 1013. Rudge Whitworth (S.A.), Ltd., care of Sidney Harry Adams, 15, Pritchard Street, Johannesburg; capital, £5,000.
- 1011. Pilgrim's Mining Estate and Exploration Co., Ltd., care of Charles Henry Dawes, 53, Tudor Chambers, Pretoria; capital, £250,000.
- 1015. Samuel Osborn and Co., Ltd., William Raeburn Snow, Hartfield, Melrose, Johannesburg; capital, £200,000.
- 1018. The Transvaal Oil Shale Syndicate, Ltd., care of Mayer Goodwin, 32, Royal Chambers, Simmonds Street, Johannesburg; capital, £60,000.

THE "S. A. MINING JOURNAL"

Mining Machinery and Material Directory

and List of Professional Men (Engineers, Assayers, &c.) practising in various parts of South Africa, Shipping and Forwarding Agents, Company Notices and Reports, and Miscellaneous Advertisements.

	PAGE.		PAGE.
A		M	
Agents Wanted	188	Metal Cutting and Welding, Oxy-Acetylene Process	xix, x
Amalgamating Plates	i	Metals and Minerals, Buyers and Sellers of	xiv, xv, Back of Index
Anti-Friction Metal	195	Mills, Rotary	xix
Arc Lamps	iii, v	Motor Cars, Accessories and Repairs	196, 197, 198, 199, 200
B		Motors, Electric	
Banks	x	Motor Oil	196
Bolting	i, ix	Motor Starters and Control Gear	
Boiler Mountings	xvi	N	
Boiler Tubes	1st Cover	Naphthalene	2nd Cover
Bridges	i, viii	Native Rations	x
C		O	
Cages	i	Oils	196, 3rd Cover
Carbon Brushes	v	Oilskins	x
Castings, Steel	xiv	Ore Bins	i
Compressors, Air	i, v	P	
Concentrating Machinery	i	Paints	xix
Condensing Plants	i	Paraffins	3rd Cover
Constructional Work	i, viii, xvi	Patent Wheels	x
Conveyors	v	Petroleum Products	3rd Cover
Copper Property for Sale	Back of Index	Pipes and Fittings	193, 1st Cover
Couplings	4th Cover	Plates, Steel	xvi
Cranes	i, v	Plummer Blocks	4th Cover
Crushers	i	Power Heads	xvi
Cyanide Vats	viii	Power Plants, Electric	i
Cylinders, Brass	xvi	Power Plant, Water	x
D		Power Transmitting Machinery	4th Cover
Disinfectants	Back of Index	Professional Directory	viii
Drills, Rock	2nd and 3rd Covers	Publications	198
Driving Chains and Wheels	v	Pulley Blocks	x
E		Pumping Machinery	i
Economisers, Fuel	xvi	Pumps, Centrifugal	i, xvi
Electric Light Fittings	v	R	
Electrical Instruments	v	Rails and Accessories	i, 1st Cover
Electrical Supplies	v, xii, xiv, xv	Ropes, Cotton Driving	ix
Elevators, Electric	i	Ropes, Wire	iii
Engineering Works	vii	S	
Engines, Gas	v, xii, xv	Safety Devices for Winding Engines	ix
Engines, Haulage	Back of Index	Self-Feeders, Ore	i
Engines, High Speed	v	Series Gear	x
Engines, Oil and Petrol	i, v, xii, xv	Shaft Plates	i
F		Shafting	i
Filters, Vacuum	iv	Shipping and Forwarding Agents	xv
Foundries	vii	Situation Wanted	192
Fuso, Safety	1st Cover	Smelters and Refiners	xiv, xv
G		Stationers and Printers	xvi
Gas Plants	i, v, xii, xv	Steamship Company	xv
Gears	i, v	Steel, Drill	1st Cover
Generators, Turbo	i, v	Steel	xi, xiv
Girders	viii	Stonebreakers	x
Grain Milling Machinery	4th Cover	Sugar Machinery	x
Greases	3rd Cover	Switchgear	i, xii, xiv
Grinding Pans	x	T	
Grinding Wheels	x	Testing Apparatus	x
H		Tools	xvi
Headgears	i, viii	Transformers, Static	x
Heating and Cooking Apparatus, Electric	v	Transmission Poles, Frame	i
Hoists	v	Trucks, Mining	i, 1st Cover
Hooks, Safety Detaching	ii	Tubo Mill Pigs	x
I		Tubes and Fittings	xvi
Indicators, Speed	x	Turbines	x
Insurance	xii	V	
Iron, Angle and Bar	xi	Valves and Fittings	xvi, 193, Back of Index
L		Ventilators, Mine	i
Lamps, Arc	iii, v, xv	W	
Lathes	xiii	Wagons, Colliery	1st Cover
Lifting Gear	x	Washers, Fastnut	196
Locomotives, Steam	v	Welding, Oxy-Acetylene	ii, vii
Locomotives, Electric and Petrol	i	Wire Ropes	iii
Lubricants	3rd Cover		

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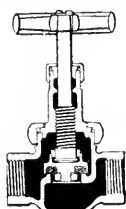


Fig. 1403—Screw-down Valve.
Fig. 1409—Flanged.

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STOP VALVE.

The only Renewable Disc Valve with an Easily Removable Cover.

Best Gun-Metal. Best Design.

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MADE IN SIZES $\frac{1}{2}$ IN. TO 5 INCHES.

A PERFECT REDUCING VALVE!



Fig. 1771—As above.
Fig. 1770—Flanged.

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No Glands, Rubber, Asbestos, Entirely
Metallic. Nothing sacrificed for cheap-
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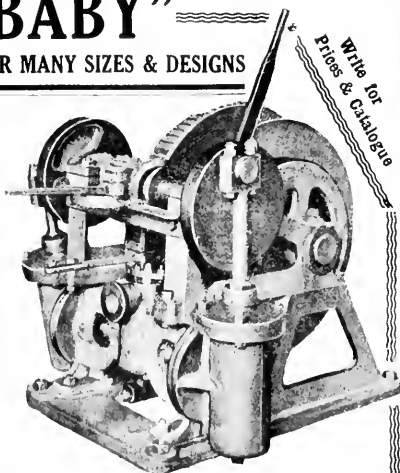
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ONE OF OUR MANY SIZES & DESIGNS

For use
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WARD'S PATENT HAULAGE ENGINE "BABY."

Cylinders, 4" x 7". Geared, 6 to 1. Drum, 12" x 14" x 20" Flanges.

Rope, 20 yards, 7". Powerful Band Brake.

Valve, Starts, Stops, Reverses and Controls by one Lever.

Cast Iron Shrouded Gear from Machine Cut Patterns, and Dog Clutch.

Drum Shaft, 2" Crank Shaft, with two keys solid with the Shaft.

Height, 2' 4"; Length 2' 8"; Width, 2' 6" over all.
These Engines will work in any position and may be hauled to a Trolley or Two
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by an Epidemic of Smallpox.**

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Plague**

the responsible authorities immediately use

JEYES' SPECIAL FLUID CYLLIN

They know by practical experience that Jeyes' Disinfectants not only prevent further infection but stamp out the disease thoroughly.

Jeyes' Cyllin is the most efficient disinfectant extant. When used in proper proportions it costs less than 1d. per gallon.

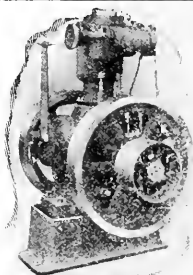
The use of Jeyes' is publicly advocated by the Government against Anthrax.

Samples and literature on disinfection free on application to

HIRSCH, LOUBSER & CO.,

LIMITED,

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THE "WIDDOP" OIL ENGINE.

Also Makers of VERTICAL PETROL
and PARAFFIN ENGINES, direct
coupled lighting sets.

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Copper! Copper! Copper!

**IMPORTANT NOTICE to Financial & Mining Houses.
For Sale:**

A Mining Lease of a well-known COPPER PROPERTY in the Pretoria district.

The Lease has still 36 years to run.

The Property has been favourably reported upon by two prominent Engineers and Geologists.

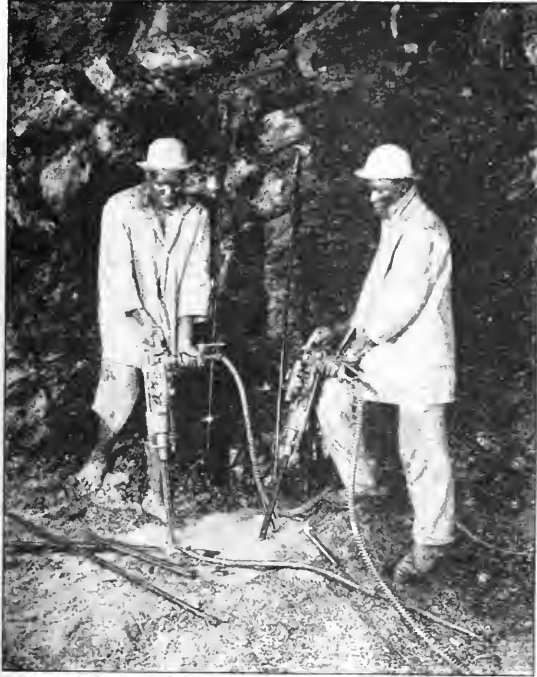
Sufficient development work has been done on the Property to prove it to be a highly payable proposition.

Now that the Copper Market is Booming this is an unrivalled opportunity to acquire a Valuable Copper Mine at a low price.

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Principals only dealt with.



THE
"CLIMAX"
HAND HAMMER DRILLS

give higher boring speed
and Longer Life at lower
maintenance costs than any
other Drill of equal size.

Weight of Drill, 48 lbs.
Smaller Pattern, 30 lbs.

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Makers : R. STEPHENS & SON, Carn Brea, Cornwall.

A Rag and a Few Drops of Gasoline

THIS is all the equipment that is required to remove any carbon that may be deposited in the cylinders of an engine using

Texaco Motor Oil.

Those of you who have ever had the pleasure (!) of chipping away at an engine with a cold chisel and a hammer to remove carbon can appreciate the full meaning of this.

But Remember this :

Under ordinary circumstances Texaco Motor Oil will not deposit carbon. It is only when through the use of too much oil or for some such reason, that the combustion is incomplete that a slight amount of carbon is deposited. This deposit is of a soft spongy nature. It will not work in between the piston rings and cannot scratch or cut the cylinder walls.

This feature in itself is of considerable importance in the lubrication of Internal Combustion engines and when considered along with the excellent lubricating qualities and its zero cold test, Texaco Motor Oil becomes the logical choice of the man who desires efficiency and economy in lubrication of such engines.

Texaco Motor Oil maintains a film between moving parts that always holds the compression and prevents injurious metal to metal contact.

THE TEXAS COMPANY

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Manufacturers of all kinds of Petroleum Products,

Box 4907 JOHANNESBURG: Cullinan Building, Main Street.

CAPE TOWN.

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HARVEY & CO., Limited,

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CONSOLIDATED BUILDING, FOX STREET, JOHANNESBURG.

Telegrams: "PENPOL."

P.O. Box 953.

Telephone 2626.

MINING ENGINEERS & GRAIN MILLING SPECIALISTS.

Sole Agents in South Africa for

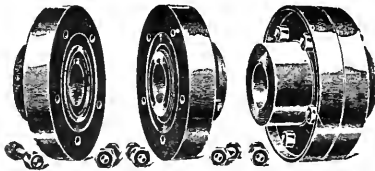
CROFT & PERKINS, LIMITED, Bradford, England.

Makers of High-Class

Power Transmitting Machinery.

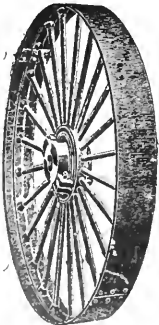
Cast Iron Pulley Couplings,
With Bolt Heads and Nuts Shrouded.

Bored, Turned, Polished: Key Beds Cut, Bolt Holes Reamed.
Fitted with Turned Steel Bolts, with Finished Hexagon Heads and Nuts.
The Joint Surfaces are Recessed and Projecting, carefully Turned and Fitted.



**Single Arms
Patent Rims.**

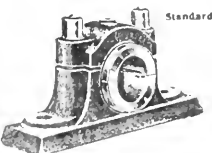
**Double Arms
Extra Strong.**



Standard Plummer Blocks.

Gun-Metal Bearings

Non-Self-Oiling



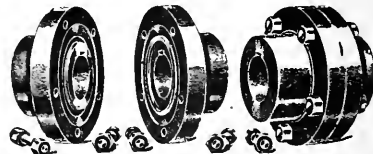
Standard



Angular

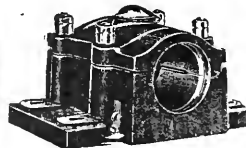
Cast Iron Flanged Couplings.
Ordinary Type.

Bored, Turned, Polished: Key Beds Cut, Bolt Holes Reamed.
Fitted with Turned Steel Bolts, with Finished Hexagon Heads and Nuts.
The Joint Surfaces are Recessed and Projecting, carefully Turned and Fitted.



**"Harvey" Type
Plummer Blocks.**

King Oiling.
Bearings lined with Anti-Friction Metal.



Plummer Blocks.

Non-Adjustable With Swivelling Bearings. Lined with Anti-Friction Metal.



SECTION
Showing Oil Chamber, Lubricating
Rings and Set Collar



Convertible Fixings.
Can be used either as Hangers or Floor Stands.



Actual Bearing Surface, 3 Diameters long.
Overall length of Standard Plummer Block, 4 Diameters.
Overall length of Plummer Block to carry Set Collar 5 Diameters.